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Distress in Couples Coping With Cancer: A Meta-Analysis and Critical Review of Role and Gender Effects

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Research concerning distress in couples coping with cancer was integrated using meta-analysis and narrative critical appraisal. Individual levels of distress were determined more by gender than by the role of being the person with cancer versus that person's partner. That is, women reported consistently more distress than men regardless of their role (standardized mean difference = 0.31). The association between patient and partner distress within couples was only moderate ($r = .29$) but is sufficient to warrant further consideration of the notion that these couples react as an emotional system rather than as individuals. It is noteworthy that this association is not moderated by gender. With a general lack of comparison groups, the question of how much distress can be ascribed to the cancer experience cannot be answered decisively; elevations in distress are probably modest. We critically discuss these results, identify important unanswered questions, and indicate directions for future research. Attention needs to be directed toward factors other than cancer as direct influences of distress in these couples and to mediators and moderators of the cancer experience.

Keywords: depression, marital, sex, Brief Symptom Inventory, illness

Being diagnosed and treated for cancer can be a life-altering experience, even when the cancer is not immediately life-threatening. Yet, the experience of cancer may depend heavily on patients' interpersonal context and, notably, their intimate partner. Partners may take an active role in key decisions concerning treatment options and provide emotional and instrumental support to the patient. In turn, the patient's experience of cancer can be a crucial influence on the partners' emotional life and well-being. To an important extent, patients and partners are interdependent in that cancer impacts on their shared life, both emotionally and practically. Thus, the partner influences the adjustment of the patient, and conversely, the patient's diagnosis and treatment of cancer affects the adjustment and emotional well-being of the partner as well.

A growing literature has developed examining the adjustment of persons with cancer and their partners. There is, as yet, no well articulated theoretical framework for such studies (for an introductory overview, see Manne et al., 2006). Across studies, however, there is a general consensus that cancer poses a major stressor for patients as well as partners and that patients and partners are involved in each other's coping and support processes. Furthermore, there are suggestions that to varying degrees, cancer affects the couple as a unit, rather than as isolated individuals.

A cursory review of this literature suggests that it is not cumulative and that it is beset by quite contradictory claims concerning the overall patterning of the data. Studies may report that patients are as distressed as partners (Mullen, Smith, & Hill, 1993; Oberst & Scott, 1988), that patients with cancer are more distressed than their partners (Ben-Zur, Gilbar, & Lev, 2001; Hoskins, 1995; Northouse, Laten, & Reddy, 1995; Northouse, Templin, Mood, & Oberst, 1998), that partners are more distressed than patients (Gilbar & Ben-Zur, 2002a; Keitel, Zevon, Rounds, Petrelli, & Karakousis, 1990; Langer, Abrams, & Syrjala, 2003; Nordin, Wasteson, Hoffman, Glimelius, & Sjoden, 2001), that husbands are as distressed as wives (Hannum, Giese-Davis, Harding, & Hatfield, 1991; Northouse & Swain, 1987), that male partners are worse off than female partners (Baider & De-Nour, 1999; Baider, Perez, & De-Nour, 1989), and that gender does not explain differences in adjustment of patients versus partners (Kornblith, Herr, Ofman, Scher, & Holland, 1994; Oberst & Scott, 1988). There has been very little advance in the specification of mechanisms, development of theory, or even empirical exploration of mediator or moderator variables because there is such disagreement about the basic phenomena to be explained.

On the basis of robust gender differences in distress in the general population (Gore & Mangione, 1983; Mirowsky & Ross, 1995; Nolen-Hoeksema, Larson, & Grayson, 1999; for reviews, see Davis, Matthews, & Twamley, 1999; Mirowsky & Ross, 1986; Nolen-Hoeksema, 2001), the confounding of the role of patient

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versus partner with gender in a considerable number of studies deserves attention. For instance, many studies examined the adjustment of patients with breast cancer and their partners. Although men do develop breast cancer, its prevalence in men is much lower than that in women (Giordano, Cohen, Buzdar, Perkins, & Hortobagyi, 2004; Hill, Khamis, Tyczynski, & Berkel, 2005). Male patients with breast cancer, to our knowledge, have never been included in studies of couples coping with breast cancer. Nevertheless, results of studies of breast cancer are sometimes discussed (a) in terms of patients and partners without reference to gender (Ben-Zur et al., 2001; Hoskins, 1995) or (b) with interchangeable use of the terms *patients versus partners* and *wives versus husbands* (Gilbar & Ben-Zur, 2002a; Northouse & Swain, 1987). Results of studies of breast cancer are sometimes integrated with the results of studies of patients with prostate cancer, where the gender of the patient and partner is reversed (e.g., Yun et al., 2005). Adding to the confusion, in studies of couples coping with cancer that are mixed with respect to cancer site and include both male and female patients, results are often discussed without reference to the gender balance among patients or even without any reference to gender (e.g., Mullen et al., 1993; Nordin et al., 2001).

To make matters even more confusing, interpretation of the existing literature is hindered by generally unnoticed inconsistencies in how gender is taken into account in the scoring of measures of distress. Some studies compare patients and partners with respect to raw scores on measures of distress and make explicit reference to gender (Hagedoorn, Buunk, Kuijer, Wobbes, & Sanderman, 2000; Northouse, Mood, Templin, Mellon, & George, 2000). However, other studies make similar comparisons after converting distress scores to gender-specific T scores, typically using algorithms derived from very different populations to control for gender (e.g., Baider & De-Nour, 1999; Baider, Koch, Esacson, & De-Nour, 1998; Ey, Compas, Epping-Jordan, & Worsham, 1998). Subsequent comparison between converted and unconverted scores invites misinterpretation. In short, general statements about the relative adjustment of persons with cancer and partners can be confusing, misleading, and difficult to evaluate. To make sense of such statements, one needs to examine the specifics of the studies on which they are based, including the cancer sites and gender of patients, and how distress scores have been calculated. This critical information is often glossed over or lost entirely in subsequent integrations and summaries of the literature.

In the past decade, there have been a number of relevant reviews of distress in either partners of persons with cancer or couples coping with cancer. Blanchard, Albrecht, and Ruckdeschel (1997) reviewed the literature concerning adjustment of family caregivers of persons with cancer and concluded that female partners were at greater risk for distress than were male partners. Carlson, Bultz, Speca, and St. Pierre (2000) described the impact of cancer for male and female partners separately, but did not make an explicit comparison with respect to distress. Baider and Bengel (2001) concluded that findings in the literature concerning distress in partners were "contradictory, inconclusive, and highly controversial" (p. 118) without offering a resolution. Pitceathly and Maguire (2003) noted that, like women in the general population, female partners of persons with cancer are more likely to be distressed than are male partners of persons with cancer. However, none of these reviews addressed the issue of whether distress associated with being a partner versus simply being an adult is larger for women than men.

A number of reviews of studies of couples coping with cancer, one concerning breast cancer (O'Mahoney & Carroll, 1997) and two concerning prostate cancer (Couper et al., 2006; Harden, 2005) were limited to studies in which all patients were of the same gender. Manne (1998) noted that couples with a female patient might be at greater risk because of the tendency of male partners to withdraw from female patients. However, this may be the expression of a robust gender difference in couples' interaction that is not tied to the presence of cancer in a couple (Christensen, Eldridge, Catta-Preta, Lim, & Santagata, 2006; Heavey, Christensen, & Malamuth, 1995). Moreover, the largest group of studies (10/20) drawn on by Manne was limited to women with breast cancer; in a number of small studies, specific gender by patient–partner status data were not available. Thus, we cannot readily evaluate the role of gender in this pattern and whether it is influenced by the presence of cancer.

All of these reviews drew on a smaller literature than is currently available, with Manne (1998) being most comprehensive. None of these reviews could effectively resolve the contradictions in the literature and none attempted to integrate results quantitatively across studies. More recently, Hodges, Humphris, and Macfarlane (2005) provided a meta-analysis that covered 21 studies of distress in persons with cancer and their caregivers. While these caregivers were mainly partners, they also included siblings, children, and close friends. Among these studies, 10 did not analyze results with respect to the gender of patients and caregivers, and 7 of the remaining studies concerned breast cancer, leaving only 4 studies in which couples with a male patient could be examined. Hodges et al. (2005) reported a gender difference in couples with a female patient, indicating higher distress in patients than in caregivers, but not in couples with a male patient.

Aim of the Present Study

Obtaining the full benefit of the accumulated literature depends on clarification of the overall importance of gender relative to the role of patient versus partner. Only then can we identify the phenomena that developing theory needs to accommodate and, on that basis, refine research questions for future studies. In the present article, we utilize meta-analysis and critical appraisal to integrate and interpret existing findings concerning some key questions about role and gender differences in distress. The questions we examine include the following:

1. What is the relative importance of the role of patient versus partner and gender in explaining differences in distress within couples coping with cancer?

2. To what extent is it useful to construe distress in patients and partners in terms of an interdependent emotional system?

3. The question that is not often asked directly but whose answer often implicitly shapes our answers to the other questions can be expressed as follows: To what extent should we attribute the level of distress observed in these couples to the presence of cancer in their lives?

Most often, in answering the questions about patient–partner role and gender, or the couple as an emotional system, the assumption is made that any distress present is to be understood in terms of the cancer experience without consideration of just how different or

similar couples confronting cancer may actually be to other couples.

Meta-analysis can provide quantitative estimates of the size and significance of associations found across studies. However, it is increasingly recognized that the interpretation of these estimates depends on the nature and quality of the studies being integrated, including their statistical but also their methodological and substantive heterogeneity (Moher, Jadad, & Klassen, 1998). It is quite possible that a meta-analysis conducted with a highly heterogeneous set of studies will be misleading in that results will accurately apply to few or none of the individual contributing studies. When significant heterogeneity is detected among studies, it needs to be interpreted and, wherever possible, resolved (Fletcher, 2007).

Statistical heterogeneity can arise either because of methodological differences in the studies, because of actual substantive differences in the samples being studied, or both. What must be done in order to make the best use of the available data is (a) to evaluate formally the degree of heterogeneity, (b) to identify studies that contribute to statistical heterogeneity if it appears to be a problem, (c) to conduct the meta-analyses with and without these studies being included, and (d) to consider the implications of excluding particular studies. For instance, it would be reassuring to know that a study being excluded was a small study with a biased convenience sample. However, it would be another matter if we found that resolving heterogeneity involved excluding studies that focused on persons with advanced stage cancer. We might solve the problem of heterogeneity but at the cost of not being able to generalize to persons with advanced cancer. We remain sensitive to reducing statistical heterogeneity and the cost it entails in terms of generalizability of our findings. One explicit goal of our effort is to document some endemic problems in the existing literature to alert readers about the need to approach this literature critically as well as to set the stage for specific improvements in the future literature.

Cancer: A Changing Phenomenon in a Historical Context

Before beginning this exercise, however, it would be helpful to review some often overlooked historical factors. Namely, dramatic changes in the biomedical and social context of individuals who are diagnosed with cancer are important for the interpretation of the data that have accumulated across time and the further development of the literature we discuss here. The appropriateness of the labels "cancer patient" as a synonym for "person who has been diagnosed with cancer" and "caregiver" as a synonym for "partner of a person diagnosed with cancer" is continually and profoundly being shaped by improvements in screening, diagnostic procedures and treatment, and the aging of the population. These and other social factors have progressively reduced the dread, fatalism, and stigma attached to cancer in ways that affect the experience of couples coping with cancer. Holland (2002) provided an excellent timeline for advances in the treatment of cancer that affect the couple's psychological experience; the following should be seen as an elaboration of that account.

In the early 20th century, detection of cancer typically depended on gross signs and symptoms and consequently was associated with a poor prognosis. Thus, the diagnosis of cancer very often represented an acute health crisis soon resulting in death. Although it is difficult to obtain accurate data from earlier periods, it appears that persons diagnosed with testicular cancer had an expected survival time of only 24 months after diagnosis, and the life expectancy after detection of breast cancer was only 36 months (Charache, 1932). In contrast, more recently, 5-year survival rates are 96% for testicular cancer and 98% for localized breast cancer (88% for all stages; American Cancer Society, 2006).

Many of today's persons with cancer would not have had their cancer even detected just a few decades ago. Current diagnostic procedures allow the identification of much smaller tumors at an earlier stage of development, many of which develop slowly without pronounced effects on life expectancy (Black & Welch, 1993). For example, before the widespread use of mammography, the detection of breast cancer depended on physical examination. As a consequence, 73% of the tumors greater than one centimeter and 90% of those less than one centimeter were missed (Hicks, Davis, Layton, & Present, 1979). Nowadays, the mean size of tumors detected by mammography is one centimeter, and even microcalcifications of a few millimeters can be detected (Black & Welch, 1993; Elkin, Hudis, Begg, & Schrag, 2005).

The number of persons alive after being diagnosed with cancer has increased dramatically over the past decades, especially due to these changes in diagnostic procedures but also to modest improvements in the efficacy of treatments and the aging of the population (Rowland & Yancik, 2006). In 1982, there were 3 million Americans living with a history of cancer, whereas by 2002 this number had grown to 10 million. The estimate for 2006 is almost 14 million (American Cancer Society, 2006). Accordingly, the nature of cancer changed considerably from acute recognition, often disfiguring surgery, and quick progression to early death to what is now typically a longer and more varied course. Cancer has become a more chronic illness, albeit with threat of recurrence.

The social context of cancer is now characterized by less dread, fatalism, stigma, and outright silence about the condition. In earlier times, however, fears that a fatalistic attitude would hasten cancer patients' death often resulted in excluding patients from knowledge of their condition and basic decision making, even when family members including partners were informed (Holland & Lewis, 2000). In the absence of any pressing medical reason, persons with cancer received prolonged hospitalization to allay family concerns about contagion and shame in the community:

> In many cases these patients have come from comfortable homes, yet the families think that they are doing the right thing for the patient by sending him to a hospital. In other instances the patient will be sent to a hospital because the relatives fear the disease is "catching." Children will not be permitted near the patient, although this probably would tend towards alleviating his mental suffering. (Charache, 1932, p. 472)

When the patient died, "natural causes" rather than cancer was listed as the cause of death in obituaries, similar to cases of AIDS at the start of the AIDS epidemic. Patients had little role in treatment decisions. In the case of breast cancer, women were routinely required to relinquish all decision making to surgeons (Leopold, 1999). Without medical necessity, women with a suspicion of breast cancer were given a general anesthetic when a biopsy was taken. If it was positive, they would be awakened with their breast fully removed. It was only in the 1970s when women successfully challenged this procedure, starting with Rosamund

Campion who refused to sign a consent form. In 1979, Rose Kushner, a woman who had been diagnosed with breast cancer, presented at the National Institutes of Health (NIH) consensus conference and won support for a two-step separation of biopsy from surgery.

The social upheavals in American society in the 1960s and 1970s led to movements for the rights of women and consumers, which in turn got expressed in recognition of the rights of persons with cancer to be informed and participate in treatment decisions (Holland, 2002). This change was accelerated as a consequence of breaking down the stigma and silence concerning cancer, fueled in part by the willingness of public figures such as Betty Ford and Shirley Temple Black to disclose and discuss their experience with cancer but also by the sheer growth in numbers of persons with cancer and survivors. As Holland (2002) aptly put it, 8 million persons with cancer and survivors came out of the closet in the 1980s. Persons with cancer of today, more than ever before, can count on acceptance and active support not only from other persons with cancer and survivors but also from the larger society.

Contemporary cancer patients are different from the cancer patients of a few decades ago. However, a seemingly rosy picture of the present is contradicted by a lack of progress in the detection and/or treatment of some cancers. By 1 year after diagnosis, 60% of persons diagnosed with lung cancer are deceased; by 2 years, 75% are deceased, and these rates have not changed in a decade (American Cancer Society, 2006). If detected while it is still confined to the ovaries, ovarian cancer has a 5-year survival rate of over 90%. Unfortunately, however, most ovarian cancer is not detected until it has spread outside the pelvis, which reduces the 5-year survival rate to only 10–30%. There have been considerable advances in the detection and treatment of earlier stage breast cancer. Yet "despite more than 3 decades of research, metastatic breast cancer remains essentially incurable and, after documentation of metastasis, the median survival time is approximately 2 years" (Bernard-Marty, Cardoso, & Piccart, 2004, p. 617). Thus, increasingly optimistic statements about the life expectancy of persons diagnosed with cancer need to be tempered with reference to those cancers for which statistics are not changing.

Persons with cancer for whom the prognosis is poor are underrepresented in the studies that we review here, and when they are included, it is often as part of a convenience sample of "mixed cancer patients." Conclusions based on such mixed samples and summary generalizations about persons with cancer may not apply well to individual persons with particular advanced cancers and their partners. This is part of a larger problem, namely, that there is an irreducible heterogeneity among persons with cancer that is obscured by generic statements about cancer, a point to which we return later in this article.

Implications of Historical Trends for Research Concerning Psychosocial Issues in Cancer

The literature has not consistently and adequately accommodated some of the implications of these broad historical changes. Owing to a greater life expectancy, quality of life—including emotional distress—becomes a more important issue. Being diagnosed with cancer remains a threatening experience, but there is still some tendency in the literature to construe cancer in terms of trauma and catastrophe in a manner that may not be consistent with the contemporary experience of many persons with cancer, or their partners, or with the available data. For instance, the manner in which the experience of cancer is introduced in many articles seems to be contradicted by van't Spijker, Trijsburg, and Duivenvoorden (1997)'s meta-analysis. These authors indicated that general distress and anxiety were not heightened in persons with cancer relative to the general population and that the differences in depression were small. Moreover, persons with cancer were no more likely to be distressed than were general medical patients. The authors noted that compared with what had been reported from 1980 to 1987, distress among persons with cancer in subsequent studies has been significantly lower.

Rather large-scale contemporary studies have sometimes been finding distress among persons with cancer to be about as prevalent as in persons in general medical settings and even the community. The largest studies of distress among persons with cancer with varying site and stage, involving about 4,500 (Zabora, Brintzenhofeszoc, Curbow, Hooker, & Piantadosi, 2001) and nearly 2,800 patients (Carlson et al., 2004), respectively, found that about 35% of the patients had elevated distress, a figure quite comparable to what is generally found in primary care waiting room samples (Fechner-Bates, Coyne, & Schwenk, 1994; Herrman et al., 2002). Similarly, it was recently found that the level of distress in a large sample ($N = 2{,}595$) of females with early-stage breast cancer (Bardwell et al., 2006) was not substantially greater than in the large general population cohort ($N = 93{,}676$) of the Women's Health Initiative Observational Study (Wassertheil-Smoller et al., 2004).

Another study compared 731 women with breast cancer, the majority in Stage I and II, with 158 women without breast cancer who were comparable with respect to age and marital status. This study applied the Hospital Anxiety and Depression Scale (HADS), an instrument also used in some of the studies reviewed in the current article. It was found that the women with breast cancer were slightly lower in anxiety and depression than the comparison/control women (Osborne, Elsworth, Sprangers, Oort, & Hopper, 2004). A similar finding was reported by Groenvold et al. (1999), who compared 462 persons with breast cancer in varying stages to 608 similar healthy comparison/controls. Although these findings may be counterintuitive, Osborne et al. (2004) have shown that they were unlikely to be the result of a response shift (i.e., a change in internal reference points due to the cancer diagnosis) in women with breast cancer or sampling bias. Another recent large-scale study found disease-free survivors of breast cancer comparable to women in the general population who had not experienced cancer in terms of mood and health-related quality of life (Ganz et al., 2002).

Such findings have begun to register in more restrained assessments of the levels of distress among persons who have been diagnosed with cancer relative to other populations. Thus, "rates of clinically significant psychological disorder in cancer patients *frequently* are found to exceed those of the general population." (Stanton, 2006, p. 5132, italics added). A consensus conference sponsored by the Depression and Bipolar Support Alliance concluded that "depression *appears* more common in patients with cancer than in the general population" (Evans et al., 2005, p. 179, italics added). However, as becomes evident in the present review, language about the uniquely devastating psychological impact of cancer persists in the literature concerning couples facing cancer,

even when the data presented in the same articles seemingly contradict such assessments. It behooves us, therefore, to look beyond this rhetoric and examine the actual data being presented and, where possible, compare it to the levels of distress found in other populations.

Historic changes in the clinical epidemiology and social context of cancer have implications for partners as well as patients. Many articles are introduced with the assumption that there are profound functional limitations associated with cancer and that partners have substantial burdens as caregivers. Yet, many of the studies we review focus on couples in which patients have no or few problems with physical role functioning and self-care, as reflected in low Eastern Cooperative Oncology Group (ECOG) performance status (Oken et al., 1982) or high Karnofsky performance status (e.g., Baider, Kaufman, Peretz, & Manor, 1996; Baider, Koch, et al., 1998). One study of couples coping with breast cancer reported that 91% of the patients had no restrictions and 9% had some restrictions, but all were ambulatory (Manne, Ostroff, Winkel, Fox, et al., 2005). Similarly, the few other studies that present data about restrictions on activities of daily living report few restrictions (e.g., Hagedoorn, Buunk, et al., 2000). Thus, the available literature suggests caution about assuming that partners of persons with cancer have substantial caregiving responsibilities, in terms of providing assistance with medical management or activities of daily living. Partners appear to be primarily sources of emotional support, except where data are presented to the contrary. Situations do occur in the treatment of cancer, where family members face considerable caregiving burden and disruption of daily routines, as with the home care of persons who have received hematopoietic stem cell transplantation (Langer et al., 2003). However, most of the partners in the studies to be reviewed here do not face such challenges. Rather than being accepted uncritically as a synonym for partner of persons with cancer, use of the term "caregiver" requires justification with explicit reference to instrumental caregiving tasks or demands of the home care or functional limitations of the person with cancer.

Framing Research Questions Concerning Couples Coping With Cancer

Psychological distress has been termed the "sixth vital sign in cancer care" (Bultz & Carlson, 2005, p. 6440), and is a critical component of emotional well-being and therefore quality of life. In conceptualizations of the experience of cancer within a stress and coping framework, distress is the most frequently adaptational outcome being explained. The concerns about the degree to which distress can be attributed to the presence of cancer and the degree of caregiving responsibilities of partners discussed above highlight the need (a) to examine more closely the available data concerning distress in couples confronted with cancer, and (b) to be cognizant of the gaps that sometimes exist between these data and the language with which the experience of cancer is often described.

Question 1: What is the Relative Importance of the Role of Patient Versus Partner and Gender in Explaining Differences in Distress Within Couples?

Several studies have concluded that patients are more distressed than partners (e.g., Ben-Zur et al., 2001; Giese-Davis, Weibel, & Spiegel, 2000; Lalos & Eisemann, 1999; Lewis, Hammond, & Woods, 1993; Mullen et al., 1993; Northouse et al., 1998; Walker, 1997). This seems quite plausible, even commonsense, because patients experience more directly the threat posed by the diagnosis and treatment of cancer, and they experience symptom distress and side effects of treatment, such as fatigue, pain, and nausea that contribute directly to elevations in psychological distress. However, a recurring and provocative claim in the literature concerning couples coping with cancer is that in terms of distress, partners are more adversely affected than patients are. For example, Keitel et al. (1990) stated that "perhaps the most striking result of the present investigation was that partners exhibited higher levels of distress than did the cancer patients undergoing surgical treatment" (p. 152). The authors provided several explanations. For instance, partners may look more to the future course of the illness than do patients, and partners may feel more helpless than patients, because they have to passively watch someone they love suffer. In contrast, because they are directly involved in the process of treatment, including decision making, patients may have more of a sense of control.

In their study on distress in couples coping with prostate cancer, Kornblith et al. (1994) considered gender-based explanations for their finding that partners were more distressed than patients. For example, they proposed "the discordance in communication between partners, with the spouse [wife] needing to openly discuss disease-related feelings and problems and the husband needing to minimize the effects of the disease, with little desire to have open discussions about such charged issues" (Kornblith et al., 1994, p. 2799) as a critical factor in explaining the higher levels of distress in the partners. However, they concluded that "it is unlikely that our findings can entirely be explained on that [gender difference in distress] basis, given the magnitude of the difference in distress found between partners as well as the congruence of our findings with others reported in the literature across male and female spouses" (Kornblith et al., 1994, p. 2799).

Nonetheless, one critical issue in the interpretation of findings regarding distress in patients and partners appears to be gender. Studies that find greater distress among partners may have confounded patient–partner role with gender, as in the case of partners of patients with prostate cancer. Indeed, studies that found patients to be more distressed than partners often studied couples coping with breast cancer (Ben-Zur et al., 2001; Giese-Davis et al., 2000; Lewis et al., 1993; Northouse, Laten, & Reddy, 1995; Northouse et al., 1998; Walker, 1997). In general, the confounding of gender and role would explain some (e.g., Davison, Goldenberg, Gleave, & Degner, 2003; Keitel et al., 1990; Ko et al., 2005; Kornblith et al., 1994) but not all (Bultz, Speca, Brasher, Geggie, & Page, 2000; Gilbar & Ben-Zur, 2002a) of the findings of greater distress among partners.

Therefore, we examine the relative importance of patient–partner role and gender in explaining differences in distress within couples coping with cancer. More specifically, we test two hypotheses:

> Hypothesis 1. Patients report more distress than partners, only if the patient is female.
>
> Hypothesis 2. Women report more distress than men, regardless of their roles.

Question 2: To What Extent Is It Useful to Construe Distress in Patients and Partners in Terms of an Interdependent Emotional System?

A number of studies have found a significant correlation between distress in patients and partners (for reviews, see Baider & DeNour, 1993; Blanchard, Albrecht, & Ruckdeschel, 1997; Manne, 1998; Northouse & Peters-Golden, 1993), which is interpreted as support for the notion that couples react as an interdependent emotional system. Some investigators further suggest that distress in one partner is transmitted directly to the other partner, perhaps as a result of emotional contagion, but the mechanism is not generally specified (Baider & Bengel, 2001; Baider & DeNour, 1993). Numerous explanations have been offered as to how people may influence each other in terms of mood and morale, particularly in the context of an intimate relationship, although such work is not typically referenced in studies of couples facing cancer. Such contagion may be automatic, that is, the result of a primitive motor mimicry (Hatfield, Cacioppo, & Rapson, 1994), and can occur even in a fleeting contact between strangers (Coyne, 1976a, 1976b; Strack & Coyne, 1983). However, particularly in close relationships, shared distress may be the result of empathy or simple caring about the fate of someone who is emotionally important, and thus we should be able to demonstrate that variables such as empathy, caring, or relationship quality moderate the relations between partners' distress (Tower & Kasl, 1996).

A first requirement for the notion of couples reacting as an emotional system would be met in the finding of a significant correlation between distress in patients and partners. However, here, as elsewhere in our analyses, we should consider how this effect is moderated by gender. Most notably, is the effect more pronounced when the male is the patient? This would be in line with rather consistent evidence from the broader literature that women's emotional life is more affected by others' well-being (e.g., Benyamini, Leventhal, & Leventhal, 2000; Hagedoorn et al., 2001; Kessler & McLeod, 1984; Turner & Avison, 1989). Furthermore, simply demonstrating a correlation between levels of distress between patients and partners is insufficient to establish that they are reacting as an emotional system (Segrin, 2006). Such a correlation may be spurious, determined not by their reactions to each other's emotion, but rather by their shared life circumstances or independent emotional reactions to a common event, notably the diagnosis and characteristics of cancer. Thus, we might find that when introduced as statistical controls, disease variables, such as stage and associated functional impairment as measured by Karnofsky performance status, may largely eliminate the correlation between distress in patients and partners. Such a finding would suggest that apparent coordinating of emotional response could be due to such patients and partners dealing with a more severe stressor relative to other couples, rather than such coordinate responses being a matter of patient's and partner's direct responsiveness to each other's level of distress.

In synthesizing the available data concerning the association between distress in patients and partners in couples coping with cancer, we examine, where possible, whether any association can be explained by such disease variables. On the basis of Hodges et al. (2005), we hypothesize that there is a moderate (i.e., approximately .30) bivariate correlation between distress in patients and partners (Hypothesis 3). Furthermore, we explore whether this correlation is moderated by gender.

Question 3: To What Extent Should We Attribute the Level of Distress Observed in These Couples to the Presence of Cancer in Their Lives?

The presumption of much of the literature concerning cancer in couples is that the experience of cancer poses considerable threat to the well-being of both patients and partners. Thus, researchers may use phrases such as "for patients and their families, a cancer diagnosis is a catastrophic life event" (Douglass, 1997; p. 1529), "women with gynecological cancer, as all cancer patients, face a major stressful encounter" (Gilbar & Ben-Zur, 2002a; p. 108), "cancer as a life-threatening illness produces high stress in both patients and families" (Hoskins, 1995; p. 435), and "the emotional, psychological, and physical stresses associated with the onset and treatment of cancer are substantial" (Ptacek, Ptacek, & Dodge, 1994; p. 48). This presumption is firmly established despite most studies not having included any comparison/control group. One exception is a study by Hagedoorn, Buunk, et al. (2000) in which a comparison group consisted of 80 couples recruited from a population registry from a small town and from a telephone book. Two other studies included a group of women found to have benign breast disease or a group of cancer-free women and their partners for comparison with women with breast cancer and their partners (Hinnen, Ranchor, et al., 2007; Northouse et al., 1998). We critically review these studies, but the small number of them available is noteworthy.

A number of researchers utilizing the Brief Symptom Inventory (Derogatis & Melisaratos, 1983) have compared the results with normative data available from the manual for the inventory (e.g., Hannum et al., 1991; Northouse & Swain, 1987) while others converted raw scores to T scores on the basis of these normative data (e.g., Baider et al., 1996; Ey et al., 1998; Peleg-Oren & Sherer, 2001). Yet, the designation of data as "normative" and therefore the standard by which data from persons with cancer and their partners are to be scored and evaluated deserves critical scrutiny. Persons diagnosed with cancer are older and differ in other ways from the general population, and in some instances, simple comparison with general population norms is less appropriate than comparisons that are matched in terms of key characteristics such as age.

Even if there is a paucity of studies providing direct comparisons between couples facing cancer and other populations, we note the importance of assumptions about the results of such comparisons in guiding the exploration of the mechanisms by which couples adjust to having cancer in their lives. Assumptions that distress is markedly higher among couples facing cancer would tend to direct research into how the presence of cancer has organized these couples' emotional lives. However, a more modest elevation in distress would shift attention back to background, psychosocial factors and how these factors directly affect adjustment or moderate the effects of cancer. Given the importance of this issue for the subsequent development of research, where possible, we supplement the sparse comparative data in the studies under review with recent studies that, taken together, allow com-

parisons between persons with cancer and their partners and members of community and primary care samples. Our goal is to gain some sense of the extent to which the cancer experience adds to distress in couples above and beyond gender differences in the normal population. We anticipate that differences between men and women dealing with cancer and men and women in the normal population are modest at best. We may still be left with a less than definitive answer to the question of how much distress is associated with the experience of cancer in couples. However, we nonetheless believe it is important to come to some provisional assessment so as to suggest directions for future research exploring the mediators and moderators of distress in couples facing cancer, moving the field beyond the simple descriptive studies that now predominate.

Method

Search Strategy

A systematic search was conducted to identify studies of distress in couples dealing with cancer. The population of studies included research which was published, in press, or under review between 1980 and March 2005. We located studies using several strategies, starting with electronic searches. Relevant articles were identified through the databases of Medline, PsycINFO, EMBASE, and CINAHL, using the key terms (neoplasms or cancer) and (spouses or partners or caregivers or couples or husbands or wife/wives or family or marriage or interpersonal relations, or human relations) and (quality-of-life or well-being or distress or psychological stress or depression or adjustment or adaptation). Next, Institute for Scientific Information (ISI; Web of Science) searches were performed on the basis of authors of studies found in the first electronic searches. We also sought articles that cited these authors. Furthermore, we saved our search terms as a weekly alert from the Institute for Scientific Information (ISI) for newly published articles. Using the Computer Retrieval of Information on Scientific Projects of National Institute of Health grants (CRISP), we searched for abstracts with cancer and couples. We then used this information to find likely authors of relevant articles and contacted them for more information. Besides electronic searches, we checked bibliographies of included articles and review articles in the field; leading authors in the field were contacted for further references or data as yet unpublished. We also contacted authors of articles from projects that appeared to have included data concerning distress in patients and partners but did not yet report on such data.

Criteria for the Selection of Studies and the Selection Process

A study was included in the final selection if it fulfilled the following criteria:

1. An assessment was available for both patients and their partners with the same measure of distress;
2. Patients were in active treatment or remission, they were survivors or had recurrent cancer, or they were women who were already affected by cancer when they participated in hereditary cancer registries or genetic counseling;
3. Partners were distinguishable from other family members or caregivers that might be included in the same sample;
4. Data included means and standard deviations and/or correlations between distress in patients and partners;
5. The sample included at least 20 couples, or at least 20 couples with a male patient or 20 couples with a female patient if data were specified by role and gender;
6. Data came from a cross-sectional, longitudinal, or intervention study;
7. Abstracts for the articles were available in Dutch, German, or English.

The process of selection was undertaken by two reviewers independently. For the initial selection of publications from search outputs, both reviewers evaluated the abstracts of the articles. If the abstract did not contain the necessary information for the selection, a full copy of the article was obtained. Disagreements over selection were resolved by discussion. We were able to determine, on the basis of the information in the English abstracts, that a handful of French and Spanish articles did not meet our inclusion criteria.

Care was taken to ensure as best as possible that particular patients and partners were uniquely represented in the meta-analysis rather than multiple times because of any publications being based on the same samples. Hence, after we selected studies according to our inclusion criteria, we checked whether multiple reports from one research group came from independent samples by comparing the demographic data and descriptions of participants. In the case of dependent samples, we selected one of the articles on the basis of the following criteria (in order of importance): (a) the most complete data (i.e., means, standard deviations, sample size, correlations; see also the Data Analyses paragraph), (b) the largest sample size, and (c) the most recent publication. Two articles concerning the same sample were retained only when they presented different parameters, for example, when one study presented means and standard deviations and the other presented correlations.

Search and Selection Results

The electronic literature search yielded a total of 524 unique titles, of which 38 articles met the inclusion criteria. Another 13 articles were retrieved through hand searching of review articles and reference lists of other relevant articles, author contact, and Website searches, including CRISP. Five of the initially selected articles were excluded from these 51 papers, because the samples fully or partly overlapped with those described in other articles (Baider, Ever-Hadani, Goldzweig, Wygoda, & Peretz, 2003; Baider et al., 1989; Baider, Walach, Perry, & De-Nour, 1998; Northouse, Templin, & Mood, 2001; Ybema, Kuijer, Buunk, DeJong, & Sanderman, 2001). The 46 articles in our final selection described 43 original studies with respect to 46 samples (see Table 1 for a list of included studies). One of the 43 studies was under review (Hinnen, Ranchor, et al., 2007), but a description of the sample and procedure of this study can be obtained from a related article based on the same sample (Hinnen, Hagedoorn, Sanderman, & Ranchor, 2007). Furthermore, we were able to include some of the studies, because authors kindly sent us additional data from their study, such as patient and partner data by gender (Fang, Manne, & Pape, 2001; Langer et al., 2003), data regarding a

Table 1
Summary of the Selected Studies

Citation	No. of couples	Role by gender?	Cancer	Stage	Time since diagnosis (in months)	Measure	Comparison or norm group?	Design	Country
Baider & DeNour (1988)[†]	62	Yes	Breast	No active disease; not in treatment	*Mdn* = 18	BDI	No	Cross-sectional	Israel
Baider & DeNour (1988)[†]	25	Yes	Colon	No active disease; not in treatment	*Mdn* = 39	PAIS (Depression)	No	Cross-sectional	Israel
Baider et al. (1996)	101	Yes	Mixed	I/II; no metastases	*M* = 30; ≥ 18	BSI (GSI)	T scores	Cross-sectional	Israel
Baider, Koch, et al. (1998)	133	Yes	Mixed	Survival prognosis ≥ 1.5 years	Within 1 month	BSI (GSI)	T scores	Longitudinal	Israel
Baider & DeNour (1999)	287	Yes	Mixed	Not reported	*M* = 31	BSI (GSI)	T scores	Cross-sectional	Israel
Baider et al. (2004)	55	Yes	Breast	I/II; disease-free at baseline	*M* = 31	BSI (GSI)	T scores	Longitudinal	Austria
Baider et al. (2004)	65	Yes	Breast	I/II; disease-free at baseline	*M* = 37	BSI (GSI)	T scores	Longitudinal	Israel
Ben-Zur et al. (2001)	73	Yes	Breast	I/II	2–6	BSI (GSI)	No	Cross-sectional	Israel
Bultz et al. (2000)	34	Yes	Breast	I/II	In past year	POMS—Total	No	Intervention for spouses	United States
Cliff & MacDonagh (2000)	135	Yes	Prostate	I/IV	*M* = 24	HADS—Depression	Cut-off scores	Cross-sectional	United Kingdom
Coyne & Anderson (1999)[††]	90	Yes	Breast/ovarian	90% in remission	*M* = 91	Hopkins SCL	No	Cross-sectional	United States
Davison et al. (2003)	74	Yes	Prostate	73% I/II	Newly diagnosed	CES-D	No	Intervention decision making for couples	Canada
Douglass (1997)	73	No	Mixed	Local to disseminated	Not reported	CES-D	No	Cross-sectional	United States
Ell et al. (1988)	152	No	Mixed	10% metastases	Not reported	MHI—Adjusted version	No	Cross-sectional	United States
Eton et al. (2005)	165	Yes	Prostate	I/III	0–3	CES-D, 15-item version	No	Intervention for patients	United States
Ey et al. (1998)	58	Yes	Mixed	I/IV	8–9 weeks	BSI (Depression-Anxiety)	T scores	Cross-sectional	United States
Fang et al. (2001)[††]	197	Yes	Mixed	I/IV; 49% IV	Near time of diagnosis	MHI—Psychological Distress	No	Longitudinal	United States
Ferrario et al. (2003)[††]	30	No	Mixed	Not reported	*M* = 60	Depression Questionnaire	Validation sample[a]	Cross-sectional	Italy
Giese-Davis et al. (2000)	48	Yes	Breast	Metastatic	*M* = 80	POMS—Total	No	Intervention for patients	United States
Gilbar & Ben-Zur (2002a)	29	No	Mixed, elderly	Not reported	2–3	BSI (GSI)	No	Cross-sectional	Israel
Gilbar & Ben-Zur (2002a)	44	Yes	Gynecological	Not reported	18 to 150	BSI (GSI)	No	Cross-sectional	Israel
Gritz et al. (1990)	32	Yes	Testicular	Not reported	*M* = 48	CES-D	No	Cross-sectional	United States
Hagedoorn, Buunk, et al. (2000); PAS	105	Yes	Mixed	29% metastases	*M* = 60	CES-D	Comparison group	Cross-sectional	Netherlands
Hagedoorn, Buunk, et al. (2000); HS	68	Yes	Mixed	38% metastases	*M* = 34	CES-D	Comparison group	Cross-sectional	Netherlands
Hannum et al. (1991)	22	Yes	Breast	I/II; no metastases	9–12	BSI (GSI)	American community norms	Cross-sectional	United States

Table 1 (*continued*)

Citation	No. of couples	Role by gender?	Cancer	Stage	Time since diagnosis (in months)	Measure	Comparison or norm group?	Design	Country
Hinnen, Ranchor, et al. (2007)[††]	92	Yes	Breast	Survival prognosis ≥ 15 months	3	HADS	Comparison group	Longitudinal	Netherlands
Hoskins (1995)	113	Yes	Breast	Not reported	7–10 days post-surgery	PAIS—Depression	No	Longitudinal	United States
Kershaw et al. (2004)[††]	112	Yes	Breast	Advanced: III/IV	*M* = 46 until 1st recurrence; 25 between 1st–2nd; 13 between 2nd–3rd	SF-36 Mental Well-Being[b]	No	Family-based intervention	United States
Ko et al. (2005)[c]	171	Yes	Prostate	A/D	*M* = 64	POMS—Total	No	Intervention for couples	United States
Kornblith et al. (1994)[†]	75	Yes	Prostate	C/D; II/III advanced	Not reported	EORTC QLQ Psychological Distress	No	Intervention for patients and spouses	United States
Kuijer et al. (2004)[d††]	59	Yes	Mixed	56% metastases	*M* = 31	CES-D	No	Intervention for couples	Netherlands
Lalos & Eisemann (1999)	23	Yes	Cervical	I/III	Time 1: 0.5; Time 2: 6	BDI	No	Longitudinal	Sweden
Langer et al. (2003)[††]	131	Yes	Mixed	51% low risk, 49% high risk	Time 1: 2 weeks-1 day prior to treatment	POMS—Depression	Comparison group	Intervention: Recovery workshops for patients (and caregivers)	United States
Lewis et al. (1993)	40	Yes	Breast	89% ≤ II, 11% III/IV	*Mdn* = 13	CES-D	No	Longitudinal	United States
Manne, Dougherty, et al. (1999)	121	No	Mixed	I/IV	81% diagnosed in the last year	MHI—Psychological Distress	No	Longitudinal	United States
Mullen et al. (1993)	Patients: 42; Spouses/ partners: 32	No	Mixed	Not reported	0 to >1 year	Occupational Stress Inventory	Community norms	Cross-sectional	United States
Northouse & Swain (1987)	50	Yes	Breast	No metastases	*M* = 6 weeks	BSI (GSI)	American community norms	Longitudinal	United States
Northouse, Laten, & Reddy (1995)[e]	74	Yes	Breast	Recurrent	*M* = 49	BSI (GSI)	American community norms	Cross-sectional	United States
Northouse et al. (1998)	58	Yes	Breast	32% cancer in axillary lymph nodes	2	BSI (GSI)	Comparison group	Longitudinal	United States
Northouse et al. (2000)	56	Yes	Colon	54% localized; no metastases	Time 1: 1 week Time 2: 3 months	BSI (GSI)	No	Longitudinal	United States
Oberst & Scott (1988)	40	No	Mixed	75% expected cure or extended remission	10 days post-discharge	BSI (GSI)	No	Longitudinal	United States
Peleg-Oren & Sherer (2001)	Patients:49; Spouses/ partners: 38	No	Mixed	Good prognosis	78% 3–6 months	BSI—Depression	T scores	Cross-sectional	Israel

(Table continues)

Table 1 (*continued*)

Citation	No. of couples	Role by gender?	Cancer	Stage	Time since diagnosis (in months)	Measure	Comparison or norm group?	Design	Country
Ptacek et al. (1994)	36	Yes	Breast	I/II	M = 15 since radiotherapy	MHI Emotional Well-Being[b]	No	Cross-sectional	United States
Scott et al. (2004)[††]	94	Yes	Breast/ gynecological	I/III	2–3	PAIS—Total (raw scores)	No	Intervention for couples	Australia
Toseland et al. (1995)	78	No	Mixed	Not reported	M = 24	CES-D	No	Intervention for spouses	United States
Tuinstra et al. (2004)[f]	137	Yes	Colorectal	Not reported	3–4	CES-D	Community norms	Longitudinal	Netherlands

Note. PAS = patient association sample; HS = hospital sample; BDI = Beck Depression Inventory; PAIS = Psychological Adjustment to Physical Illness Scale; BSI = Brief Symptom Inventory; GSI = Global Severity Index; POMS = Profile of Mood States; HADS = Hopkins Anxiety and Depression Scale; SCL = Symptom Check List; CES-D = Center for Epidemiologic Studies—Depression scale; MHI = Mental Health Inventory; SF-36 = 36-item Short Form Health Survey Questionnaire; EORTC QLQ = European Organization for Research and Treatment of Cancer Quality of Life Questionnaire.

[†] *SD* estimated based on *t* value and correlation. [††]Information received from authors.

[a] Male and female patients were compared with a male validation group, and male and female partners were compared with a female validation group. [b] Scale was recoded, with higher scores indicating more distress. [c] For correlational data, see Banthia et al. (2003). [d] Only the couples with a female patient were included in this meta-analysis, because only 16 couples with a male patient participated. [e] For correlational data, see Northouse, Dorris, and Charron-Moore (1995). [f]In this study, distress was assessed retrospectively. Specifically, after surgery, couples were asked about their distress before surgery. For reasons of comparability, we included the second assessment.

subsample of patient–partner dyads (Coyne & Anderson, 1999; Ferrario, Zotti, Massara, & Nuvolone, 2003; Kershaw, Northouse, Kritpracha, Schafenacker, & Mood, 2004), or baseline data concerning all initial participants of an intervention study (Kuijer, Buunk, Jong, Ybema, & Sanderman, 2004; Scott, Halford, & Ward, 2004).

Characteristics of the Selected Studies

All articles were summarized in terms of demographics for both patients and partners, cancer site, stage and treatment, study design, recruitment procedure, response rate, loss to follow-up in longitudinal studies, time since diagnosis at assessment, measure of psychological distress, whether a comparison group was included, and data concerning distress (i.e., means, standard deviations, sample size for patients and partners by gender, and correlations).

Table 1 presents a summary of the 46 samples included in the final meta-analysis. The majority of the studies were conducted in the United States (25), Israel (9), and the Netherlands (4). Couples dealing with breast cancer were most frequently studied (15). Other studies consisted of samples of couples dealing with prostate (5), gynecological (4), colorectal (3), or testicular (1) cancer, or samples in which the cancer diagnosis varied (18). Almost half of the studies (20) had a cross-sectional design, 14 were longitudinal studies and 9 involved observational data collected in the context of an intervention study. The time since diagnosis varied considerably, with 23 studies assessing distress within the first 18 months after diagnosis. There was also variation in stages of cancer across studies; 10 samples consisted of patients with a good prognosis (Stages I/II, no metastases), whereas 3 consisted of patients with advanced/recurrent disease. Another large number of samples were mixed with respect to cancer stage, although the majority of persons diagnosed within these studies had early-stage cancer (22). For 11 samples, information about stage was not available.

Measures of Distress

Prefatory Note on Self-Reported Distress

There is diversity in the conception and measurement of distress across studies, and it is quite common for studies to include multiple measures of distress. It is generally assumed that these measures are not redundant but that they assess distinct constructs. Yet, the correlations among multiple measures that would allow examination of whether they were indeed independent are typically not reported. However, a larger literature suggests that despite differences in intent and labeling of instruments, measures of seemingly disparate aspects of distress converge on a common factor (Coyne, 1994; Gotlib, 1984). Thus, Depression and Anxiety subscales of the Hopkins Symptom Checklist (SCL; Derogatis, Lipman, Rickels, Uhlenuth, & Covi, 1974) are so highly correlated that they can be combined into a single measure of distress (Hough, Landsverk, Stone, & Jacobson, 1982). A similar case can be made for combining the Anxiety and Depression subscales of the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983) into a single scale (Hall, A'Hern, & Fallowfield, 1999; Razavi, Delvaux, Farvacques, & Robaye, 1990).

Furthermore, the Hopkins Symptom Checklist-25 (SCL-25) performed better as a screening instrument for major depression (Hough et al., 1982) than did the Center for Epidemiologic Studies—Depression Scale (CES-D; Radloff, 1977), a self-report measure explicitly labeled to assess depression. In general, self-report measures of "depression" are more related to other measures of distress than to a clinical diagnosis of depression. The optimal cutpoints on self-report measures of "depression" generally do not have a positive predictive value for major depression greater than .30 unless there has been a trade-off made in substantial cases of clinical depression being missed (Coyne, 1994; Fechner-Bates et al., 1994). Finally, even when self-report instruments are given such seemingly distinct labels as "depression" and "emotional well-being," the correlation among them suggests a single underlying concept. Thus, the association between the Emotional Well-Being Scale of the widely used Functional Assessment of Cancer-Therapy Scale (FACT; Cella et al., 1993) and the CES-D in a sample of women with breast cancer was found to be as high as the internal consistency of these measures allowed (Coyne et al., in press). Similar results have been obtained for the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire, core 30 questions (EORTC QLQ-C30) and the HADS (Mystakidou et al., 2005).

In reviewing and integrating studies of distress in couples facing cancer, we note the different measures that have been used, but it is important to remain cognizant that conceptual distinctions are not preserved when correlations among measures are examined. Moreover, the finding that one, but not another, measure in a particular study has yielded a particular result may not have an unambiguous substantive interpretation.

Measures of Distress in Studies Selected for Meta-Analysis

The distress measures that were used most frequently in studies of couples coping with cancer selected for meta-analysis were the Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983), the Center for Epidemiologic Studies—Depression Scale (CES-D; Radloff, 1977), the Mental Health Inventory (MHI; Veit & Ware, 1983), the Profile of Mood States (POMS; Guadagnoli & Mor, 1989; McNair, Lorr, & Droppleman, 1971, 1992), and the Psychological Adjustment to Physical Illness Scale (PAIS; Derogatis, 1983). The BSI includes nine symptom dimensions: Somatization, Obsessive–Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism, but the items on all subscales are also averaged into the Global Severity Index (GSI). To adjust for gender differences in the normal population, this average score is sometimes transformed into a T score based on American norms for men and woman separately (Derogatis, 1993). The CES-D assesses depressive symptoms. The MHI measures psychological well-being and common symptoms of distress with an effort to exclude physical and psychosomatic symptoms (Ware, Manning, Duan, Wells, & Newhouse, 1984). The POMS assesses six affective dimensions, namely, Tension, Anger, Depression, Vigor, Fatigue, and Confusion. A total mood disturbance (TMD) score is established by adding the negative subscale scores and subtracting the scores on vigor. The PAIS includes four dimensions: role performance in the Vocational, Domestic, and Social Environment, as well as Psychological Distress. Some studies reported a total score, whereas others reported scores with respect to the subscale of Psychological Distress.

Somewhat arbitrarily, but for consistency, when distress in patients and their partners was assessed with several measures, the more narrow psychological distress (i.e., depressive symptoms) measure was chosen over a broader one that also includes, for example, hostility and somatization (e.g., the CES-D was chosen over the BSI). In turn, a broader distress measure was chosen over an assessment of psychosocial adjustment (e.g., the BSI was chosen over the PAIS). Furthermore, the scales with a higher score indicating better mental health were recoded to reverse scoring.

Data Analysis

We used meta-analysis to address the first two research questions: Question 1, "What is the relative importance of the role of patient versus partner and gender in explaining differences in distress within couples?" and Question 2, "To what extent is it useful to construe distress in patients and partners in terms of an interdependent emotional system?" We used a narrative approach to address Question 3, "To what extent should we attribute the level of distress observed in these couples to the presence of cancer in their lives?"

Means and standard deviations needed to compare levels of distress in patients and their partners were available for 45 of the 46 samples, including 19 samples with a female patient, 7 samples with a male patient, 11 mixed-cancer samples for which patient and partner data by gender were available, and 8 mixed-cancer samples for which patient and partner data by gender were not available. For 25 samples, correlation coefficients were available for inclusion in the correlational analysis, including 20 correlations for samples with a female patient, 10 for samples with a male patient, and 5 for mixed samples that included both male and female patients. With respect to longitudinal and intervention studies, only statistics from the first assessment point after diagnosis were selected.

Meta-Analysis

Question 1: What is the relative importance of the role of patient versus partner and gender in explaining differences in distress within couples? We calculated standardized mean differences (*SMD*s = Hedges's *g*) and 95% confidence intervals to investigate whether patients and partners reported different levels of distress. A positive overall *SMD* indicates that patients reported more distress than did partners. Next, we performed a moderator analysis to examine whether a difference between distress in patients and partners was qualified by the gender of the patient (i.e., to test Hypothesis 1). In a second series of analyses, we compared distress in women with distress in men within couples coping with cancer and tested Hypothesis 2, women report higher levels of distress than men regardless of their roles (i.e., in couples with a male patient as well as in couples with a female patient). In these latter analyses, a positive overall *SMD* indicates that women reported more distress than men. We also explored to what extent illness-related and methodological variables—including time since diagnosis, cancer stage, study design, sample size, and response rate—affected the difference in distress between men and women.

Data were analyzed with Review Manager (RevMan, Version 4.2.8 for Windows; Cochrane Collaboration, 2004). In order to account for between-studies variance, we assumed a random effects model (DerSimonian & Laird, 1986) in all meta-analyses presented here. Before we performed the analyses, GSI T-scores (BSI) were transformed back into raw scores according to the norm scores published by Derogatis, 1993, and Derogatis and Melisaratos, 1983. This procedure yielded an estimation of the original raw score. One study by Ey et al. (1998) presented T scores based on two subscales of the BSI that could not be transformed back to raw scores and, therefore, was excluded from further analysis. The sample sizes of the selected studies varied considerably, which creates the risk that a small, outlying sample will exert disproportionate influence over the combined estimate. To minimize this risk, the effect of a specific sample on the combined estimate was weighted by sample size (Rosenthal, 1991).

Question 2: To what extent is it useful to construe distress in patients and partners in terms of an interdependent emotional system? On the basis of the Hunter and Schmidt (1990) method, we calculated mean correlations for all couples (i.e, to test Hypothesis 3) and for couples with a female patient and couples with a male patient, respectively. A study by Fields (2001) based on 200,000 Monte Carlo trials showed that the Hunter–Schmidt method tended to provide the most accurate estimates of the mean population effect size when effect sizes were heterogeneous, which is commonly the case in meta-analysis. In the heterogeneous case, another frequently used method by Hedges and colleagues (Hedges & Olkin, 1985; Hedges & Vevea, 1998) tended to overestimate effect sizes by about 15–45%, whereas the Hunter–Schmidt method tended to underestimate it by a smaller amount (5–10%), and then only when the population average correlation exceeded .5.

For longitudinal studies, only the baseline correlation was included. To examine the robustness of the findings, however, we repeated the analysis with the baseline correlations replaced by the mean correlations found within longitudinal studies. To prevent the under-representation of nonsignificant findings, we included a correlation described as nonsignificant, but for which a precise coefficient was not presented, as zero. We repeated the analysis with such findings excluded.

Outliers. In both the mean differences and correlational analyses, we used Huffcutt and Arthur's (1995) procedure to calculate their sample-adjusted meta-analytic deviance (*SAMD*) statistic to test for the presence of outliers. This procedure is specifically designed for detecting outliers in meta-analytic data and takes into account sample size and variability of the effect size in identifying outlier data points. Huffcutt and Arthur (1995) recommended that *SAMD* statistics be interpreted by rank ordering the absolute value of *SAMD* estimates to form a scree plot, similar to that used in exploratory factor analysis. Furthermore, we used the criterion of the *SAMD* cutoff value 2.58 to identify outliers (Beal, Corey, & Dunlap, 2002).

Statistical heterogeneity. We have tested the statistical heterogeneity across studies by means of the chi-square test and the I^2 tests (Higgins & Thompson, 2002; Higgins, Thompson, Deeks, & Altman, 2003). The latter describes the percentage of variability in effect estimates that is due to heterogeneity rather than sampling error. A value greater than 50% may be considered as indicating considerable heterogeneity, and a value of $< 25\%$ is considered to be low. Low heterogeneity provides greater confidence that the studies can reasonably be described as sharing a common effect size.

Fail safe N. To test the so-called "file-drawer effect" (the probability that unpublished null results would eliminate the obtained results), for each significant result, we computed the "fail-safe *N*" (*FSN*). The *FSN* is the number of null results that would be needed to overturn a significant result. We used the method advised by Darlington and Hayes (2000) and examined the number of studies that would make $p > .05$. Generally, if the *FSN* is greater than or equal to five times the number of studies in the analysis plus ten ($x \geq 5k + 10$), the obtained results are considered to be robust against the file-drawer effect (Rosenthal, 1991).

Narrative Approach

Question 3: To what extent should we attribute the level of distress observed in these couples to the presence of cancer in their lives? Our goal was to obtain an estimate of the extent to which the cancer experience adds to distress in couples above and beyond gender differences in the normal population. First, we addressed the issue by reviewing the studies selected for our meta-analysis that included a comparable sample of reference couples. Because there were only four such studies (of which two examined breast cancer), we did not apply meta-analysis but chose a narrative approach. Furthermore, to compensate for the limitations in the research of couples coping with cancer, we next compared the couples' distress scores with distress scores of persons from the community and primary care settings. However, the first question we needed to confront was whether the level of distress in persons with cancer in studies of couples was comparable to distress in individuals in studies that focused on patients alone. There are two ways by which a difference might occur. The first possible reason would be that being in a relationship when confronted with cancer confers some advantage over confronting cancer while being without a partner, and thus a sample limited to partnered persons with cancer would be less distressed than a sample having a mix of partnered and single persons. A second reason, however, is that there might be a bias in the persons with cancer who participate in studies of couples because they had better intimate relationships as seen in their willingness and ability to enlist their partner in the study versus coupled persons who did not enlist a partner and were therefore excluded.

Results

Question 1: What is the Relative Importance of the Role of Patient Versus Partner and Gender in Explaining Differences in Distress Within Couples?

Overall Analysis

The first analysis examining whether patients are more distressed than partners revealed a nonsignificant combined standardized mean differences (*SMD*) score of 0.03, with a 95% confidence interval of -0.08 to 0.15 ($Z = 0.57$, $p = .57$; $N_{total} = 7{,}080$). This indicates that there was no overall difference in distress between patients and partners. However, this finding must be qualified by

significant individual study effects in both directions (see Table 2): *SMD*s ranged from −0.99 (partner more distressed) to 0.84 (patient more distressed). Furthermore, the chi-square, $\chi^2(52) = 292.91$, $p < .001$, and I^2 (82.2%) indicate that there was considerable heterogeneity across studies, which further justifies our next step to examine whether gender of the patient moderated the direction of the difference between distress in patients and partners.

Hypothesis 1: Patients Report More Distress Than Partners, Only if the Patient Is Female

A moderator analysis revealed that taking into account the gender of the patient substantially reduced the heterogeneity, $\chi^2_{diff} = 127.93$, $p < .001$. Specifically, the results showed that, in couples with a female patient, patients reported more distress than did partners (*SMD* = 0.27, 95% *CI* = 0.13 to 0.40, $Z = 3.78$, $p < .001$, $N = 3{,}578$), whereas partners reported more distress than did patients in couples with a male patient (*SMD* = −0.34, 95% *CI* = −0.47 to −0.20, $Z = 4.92$, $p = < .001$, $N = 2{,}599$). This result provides strong support for Hypothesis 1, namely, that partners would report more distress than patients only in couples with a male patient. In samples that included both male and female patients, there was no significant difference between distress in patients and partners (*SMD* = −0.01, 95% *CI* = −0.18 to 0.15, $Z = 0.15$, $p = .88$, $N = 903$), indicating that when gender differences were not explicitly taken into account, differences associated with whether patients were men or women canceled each other out.

Hypothesis 2: Women Report More Distress Than Men, Regardless of Their Roles

To test this hypothesis, we compared distress in female participants with distress in male participants, thus, of necessity, excluding studies that did not identify the gender of patients and partners. The overall analysis revealed a significant combined standardized mean difference (*SMD*) score of 0.30, with a 95% *CI* of 0.20 to 0.39 ($Z = 5.92$, $p < .001$, $N_{total} = 6{,}179$), indicating that within couples coping with cancer, women reported more distress than men (see Table 3).

Sources of heterogeneity. Before we tested whether this difference was moderated by gender of the person with cancer (Hypothesis 2), we sought to identify potential outlier studies by calculating Huffcutt and Arthur's (1995) sample-adjusted meta-analytic deviancy (*SAMD*) statistic. Values of the *SAMD* statistic ranged from −5.14 to 4.31. The scree plot for our data[1] clearly indicated that three samples had much larger *SAMD* values than the other samples selected. The outlier studies were Bultz et al. (2000; $SAMD_{absolute\ value} = 5.14$) and Gilbar and Ben-Zur (2002a; sample of couples coping with gynecological cancer; $SAMD_{absolute\ value} = 4.71$) because of high negative SMDs, as well as the sample of male patients and their partners presented in Baider, Koch, et al. (1998; $SAMD_{absolute\ value} = 4.31$) because of a high positive *SMD*.

We followed Huffcutt and Arthur's (1995) advice to conduct a follow-up investigation to determine whether the outlier studies were different from the other studies in our analysis, in terms of samples, measures, or other relevant characteristics. The high negative *SMD* for the Bultz et al. (2000) study may be due to the derivation of a biased sample from baseline assessments for an unusual pilot study evaluating an intervention to reduce distress among the partners of women with breast cancer. Most couples who were approached did not agree to participate, with the predominant reason given that either the women did not believe that their partners would be interested or that the men themselves declined participation. Bultz et al. noted that the distress scores in the couples who were recruited were considerably higher than what is considered normative for persons with cancer and their next of kin (i.e., Cassileth, Lusk, Brown, & Cross, 1985). Both Gilbar and Ben-Zur (2002a) and Baider, Koch, et al. (1998) were conducted in Israel with instruments translated into Hebrew. Other Israeli studies with instruments translated into Hebrew also had high *SAMD* scores (Baider & De-Nour, 1999, sample of female patients and their partners, *SAMD* = 3.15, and Baider, Koch, et al., 1998, sample of female patients and their partners, *SAMD* = 2.95), and we later return to the issue of their comparability with North American and European studies, as the presentation of our findings continues and further evidence of their distinctiveness accumulates. Two other samples had an *SAMD* score above the cutoff of 2.58 (Beal et al., 2002). One was from Langer et al.'s (2003) study (sample of female patients and their partners, $SAMD_{absolute\ value} = 2.67$), which involved couples in which the patients were to receive stem cell transplantation within 2 weeks. The second was from Fang et al.'s (2001) study (sample of female patients and their partners, *SAMD* = −2.64) in which couples were quite mixed in terms of site and staging of cancer and were recruited shortly after diagnosis, when most patients were in active treatment.

We repeated the analysis to examine gender differences in distress three times, namely, (a) without the three outliers that had been identified on the basis of the scree plot, (b) without the samples that scored above the *SAMD* cutoff value of 2.58, and (c) without the samples above the cutoff and all Israeli BSI studies. Table 3 shows that the exclusion of the outlying studies had little effect on the combined *SMD* but that the exclusion of the outliers did affect the heterogeneity. Note that the exclusion of the Israeli studies below the *SAMD* cutoff value did not reduce the heterogeneity.

Gender of the patient as a moderator. All of the remaining moderator analyses were run four times: (a) all available samples, (b) without the three outliers identified with the scree plot, (c) without the seven outliers that scored above the cutoff value for the *SAMD,* and (d) without all outliers as well as all Israeli BSI studies. The results of the four sets of analyses were virtually the same. Therefore, we only present the results of the analyses without the outliers with an *SAMD* score above the cutoff value.

We investigated whether within couples, women reported more distress than men regardless of their patient or partner role (Hypothesis 2). Table 3 shows that gender of the patient does not moderate the overall gender difference in distress ($\chi^2_{diff} = 1.21$, $p = 0.27$). Thus, women reported more distress than did men in couples with a female patient as well as in couples with a male patient. An additional analysis showed that there were no patient–partner differences within women (*SMD* = 0.04, 95% *CI* = −0.16 to 0.23, $Z = 0.38$, $p = .70$, $N = 447$) nor within men (*SMD* = 0.02, 95% CI = −0.20 to 0.25, $Z = 0.18$, $p = .85$, $N = 454$). Heterogeneity was low for women, $\chi^2(4) = 3.76$, $p = .44$, $I^2 = 0\%$, and men $\chi^2(4) = 5.34$, $p = .25$, $I^2 = 25\%$. However, it must

[1] The scree plot is available from the authors.

Table 2
Descriptive Statistics and Effect Estimate for All Samples in the Meta-Analyses

Study	Patients			Partners			*SMD*	95% *CI*	Correlation
	M	*SD*	*n*	*M*	*SD*	*n*			
Couples with a female patient									
Bultz et al. (2000)	21.29	11.97	34	32.07	10.11	34	−0.96	−1.47, −0.46	
Gilbar & Ben-Zur (2002a)	0.47	0.36	44	0.71	0.30	44	−0.72	−1.15, −0.29	.43**
Langer et al. (2003)	0.67	0.82	65	0.83	0.82	60	−0.19	−0.55, 0.16	.22
Fang et al. (2001)	48.07	12.22	108	48.94	14.32	108	−0.07	−0.33, 0.20	.43***
Northouse & Swain (1987)	0.47	0.44	50	0.49	0.42	50	−0.05	−0.44, 0.35	
Hannum et al. (1991)	0.35	0.24	22	0.35	0.31	22	0.00	−0.59, 0.59	−.36
Ptacek et al. (1994)	80.06	23.39	36	78.78	22.46	36	0.06	−0.41, 0.52	
Hinnen, Ranchor et al. (2007)	4.13	4.00	92	3.86	3.60	92	0.07	−0.22, 0.36	.28**
Giese-Davis et al. (2000)	23.20	28.00	48	20.90	26.30	48	0.08	−0.32, 0.48	.39**
Baider et al. (1996)	0.50	0.40	38	0.46	0.31	38	0.11	−0.34, 0.56	.56**
Hoskins (1995)	13.30	4.10	113	12.80	3.60	113	0.13	−0.13, 0.39	.12
Northouse et al. (2000)	0.48	0.38	22	0.40	0.43	22	0.19	−0.40, 0.79	.09[a]
Scott et al. (2004)	28.00	14.70	94	25.00	13.80	94	0.21	−0.08, 0.50	.45***
Lewis et al. (1993)	10.92	10.21	40	8.95	7.74	40	0.22	−0.22, 0.65	
Kershaw et al. (2004)	37.03	10.95	112	34.49	9.46	112	0.25	−0.02, 0.51	.11
Northouse, Laten, & Reddy (1995)[b]	0.50	0.33	74	0.38	0.36	74	0.35	0.02, 0.67	.29*
Hagedoorn, Buunk et al. (2000; HS)	10.62	6.96	34	7.56	6.21	34	0.46	−0.02, 0.94	.04
Baider et al. (2004; Austria)	0.26	0.29	55	0.14	0.23	55	0.46	0.08, 0.83	
Baider & DeNour (1988)	6.80	5.50	62	4.20	5.50	62	0.47	0.11, 0.83	.39**
Northouse et al. (1998)	0.55	0.40	58	0.37	0.36	58	0.47	0.10, 0.84	.27*
Ben-Zur et al. (2001)	0.98	0.78	73	0.63	0.67	73	0.48	0.15, 0.81	.47***
Hagedoorn, Buunk, et al. (2000; PA)	12.70	9.64	30	8.10	6.05	31	0.57	0.05, 1.08	.34
Coyne & Anderson (1999)	39.88	10.79	90	34.53	6.70	90	0.59	0.29, 0.89	.12
Baider et al. (2004; Israel)	0.56	0.30	65	0.38	0.27	65	0.63	0.27, 0.98	
Tuinstra et al. (2004)	13.40	9.50	48	7.80	6.90	48	0.67	0.26, 1.08	.28
Baider & De-Nour (1999)	0.74	0.31	169	0.54	0.26	169	0.70	0.48, 0.92	.44***
Lalos & Eisemann (1999)	11.50	10.40	23	5.50	3.90	23	0.75	0.15, 1.35	
Kuijer et al. (2004)	19.91	10.80	34	12.15	8.04	34	0.81	0.31, 1.30	.36*
Baider, Koch et al. (1998)	0.50	0.35	58	0.26	0.20	58	0.84	0.46, 1.22	
Ey et al. (1998)	—	—	43	—	—	43	—	—	.30*
Couples with a male patient									
Baider, Koch et al. (1998)	0.46	0.28	75	0.78	0.36	75	−0.99	−1.33, −0.65	
Northouse et al. (2000)	0.31	0.21	34	0.62	0.50	34	−0.80	−1.29, −0.30	.09[a]
Fang et al. (2001)	45.66	13.78	89	54.70	14.99	89	−0.63	−0.93, −0.32	.15
Langer et al. (2003)	0.65	0.67	63	1.02	0.83	62	−0.61	−0.97, −0.25	.25*
Hagedoorn, Buunk et al. (2000; HS)	7.89	6.77	27	12.50	8.38	24	−0.60	−1.16, −0.04	.30
Tuinstra et al. (2004)	7.70	6.80	89	11.30	10.30	89	−0.41	−0.71, −0.11	.12
Davison et al. (2003)	11.49	8.21	73	15.15	10.94	73	−0.38	−0.70, −0.05	
Baider et al. (1998)	1.80	2.99	25	2.80	2.99	25	−0.33	−0.89, 0.23	.06
Ko et al. (2005)[c]	17.15	33.22	171	26.70	37.04	171	−0.27	−0.48, −0.06	.25** (n = 154)
Gritz et al. (1990)	7.00	8.70	34	8.60	7.90	32	−0.19	−0.67, 0.29	.46
Eton et al. (2005)	0.48	0.48	165	0.56	0.46	165	−0.17	−0.39, 0.05	
Komblith et al. (1994)	1.71	2.76	75	2.09	2.76	75	−0.14	−0.46, 0.18	
Baider et al. (1996)	0.42	0.28	63	0.46	0.31	63	−0.13	−0.48, 0.22	.25*
Cliff & MacDonagh (2000)	3.30	3.30	135	3.60	3.00	135	−0.09	−0.33, 0.14	
Baider & De-Nour (1999)	0.54	0.28	118	0.56	0.33	118	−0.07	−0.32, 0.19	.48***
Hagedoorn, Buunk, et al. (PAS, 2000)	11.85	9.59	68	11.83	7.89	65	0.00	−0.34, 0.34	.13
Gender of the patient unidentified									
Oberst & Scott (1988)	0.41	0.35	40	0.57	0.48	40	−0.38	−0.82, 0.07	*ns*
Manne, Dougherty, et al. 1999	50.12	14.16	121	53.44	16.40	121	−0.22	−0.47, 0.04	
Peleg-Oren & Sherer (2001)	55.37	9.93	49	57.37	10.94	38	−0.19	−0.62, 0.23	
Gilbar & Ben-Zur (2002a)	0.90	0.75	29	0.87	0.62	29	0.04	−0.47, 0.56	.70***
Douglass (1997)	3.52	1.88	73	3.42	1.95	73	0.05	−0.27, 0.38	
Toseland et al. (1995)	17.34	7.77	78	15.99	5.57	78	0.20	−0.12, 0.51	
Mullen et al. (1993)	45.00	13.44	42	41.91	11.83	32	0.24	−0.22, 0.70	
Ferrario et al. (2003)	8.13	4.90	30	6.70	4.50	30	0.30	−0.18, 0.15	.43*
Ell et al. 1988			152			152			.29***

Note. Studies were sorted by effect estimate (standardized mean difference [*SMD*]). *CI* = confidence interval; PAS = patient association sample; HS = hospital sample.
[a] Correlation not provided by gender. [b] For correlational data, see Northouse, Dorris, and Charron-Moore (1995). [c] For correlational data, see Banthia et al. (2003).
* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3
Gender Differences in Distress Among Couples Dealing With Cancer

Meta-analysis	*k*	Total *N*	Combined *SMD*	95% *CI*	Combined *Z* (*p*)	χ^2 (*p*)	I^2 (%)	*FSN*
All samples	45	6,179	0.30	0.20–0.39	5.92 ($p < .001$)	154.81 ($p < .001$)	71.6	1,006[b]
Minus outliers identified by scree plot	42	5,873	0.32	0.24–0.40	7.70 ($p < .001$)	93.65 ($p < .001$)	56.2	927[b]
Minus outliers identified by cut-off value	38	5,078	0.31	0.24–0.38	8.43 ($p < .001$)	58.66 ($p = .01$)	36.9	771[b]
Minus outliers and all Israeli studies applying the Brief Symptom Inventory	32	4,254	0.31	0.23–0.39	7.75 ($p < .001$)	48.79 ($p = .02$)	36.5	618[b]
Moderator: Gender of the patient ($\chi^2_{difference} = 1.21$, $p = .27$)								
Couples with a female patient	23	2,627	0.33	0.24–0.43	6.80 ($p < .001$)	32.54 ($p = .07$)	32.4	399[b]
Couples with a male patient	15	2,451	0.28	0.17–0.40	5.12 ($p < .001$)	24.91 ($p = .04$)	43.8	198[b]
Moderator: Time since diagnosis[a] ($\chi^2_{difference} = 0.14$, $p = .71$)								
Mean ≤ 18 months	18	2,369	0.33	0.21–0.44	5.61 ($p < .001$)	31.19 ($p = .02$)	45.5	198[b]
Mean ≥ 19 months	19	2,559	0.31	0.21–0.41	5.98 ($p < .001$)	27.29 ($p = .07$)	34.0	399[b]
Moderator: Cancer stage/prognosis ($\chi^2_{difference} = 2.40$, $p = .49$)								
Early stage cancer	10	850	0.26	0.10–0.43	3.17 ($p = .002$)	12.43 ($p = .19$)	27.6	82[b]
Mixed stage samples	18	2,718	0.34	0.23–0.45	6.13 ($p < .001$)	31.95 ($p = .02$)	46.8	262[b]
Advanced cancer	3	468	0.16	−0.02–0.34	1.73 ($p = .08$)	1.83 ($p = .40$)	0.0	
Cancer stage/prognosis unknown	7	1,042	0.34	0.16–0.53	3.65 ($p < .001$)	12.66 ($p = .05$)	52.6	82[b]
Moderator: Sample size ($\chi^2_{difference} = 1.65$, $p = .20$)								
Sample size 20–59	18	1,312	0.36	0.23–0.49	5.46 ($p < .001$)	23.42 ($p = .14$)	27.4	198[b]
Sample size ≥ 60	20	3,766	0.29	0.20–0.37	6.49 ($p < .001$)	33.59 ($p = .02$)	43.4	399[b]
Moderator: Design ($\chi^2_{difference} = 2.83$, $p = .24$)								
Cross-sectional	16	1,851	0.27	0.16–0.38	4.71 ($p < .001$)	20.41 ($p = .16$)	26.5	82
Intervention	9	1,671	0.28	0.17–0.40	4.77 ($p < .001$)	10.80 ($p = .21$)	25.9	82[b]
Longitudinal	13	1,556	0.39	0.14–0.54	5.03 ($p < .001$)	25.55 ($p = .01$)	53.0	329[b]
Moderator: Response rate ($\chi^2_{difference} = 0.84$, $p = .36$)								
Response ≥ 60	21	2,764	0.34	0.24–0.43	6.67 ($p < .001$)	31.91 ($p = .04$)	37.3	399[b]
Response < 60 or unknown	17	2,314	0.28	0.18–0.39	5.11 ($p < .001$)	25.91 ($p = .006$)	38.3	198[b]

Note. Studies that did not present data by gender were omitted from these analyses. Standardized mean difference (*SMD*) values greater than zero indicate more distress in female than in male participants. χ^2 and I^2 indicate the heterogeneity across the studies; I^2 = the percentage of variability in effect estimates that is due to heterogeneity rather than sampling error, with $I^2 > 50$ representing considerable heterogeneity; *k* = number of studies; *CI* = confidence interval; *FSN* = fail-safe *N*. In the moderator analyses, the seven outlier studies were excluded.
[a] One study by Kornblith et al. (1994) was excluded because time since diagnosis was unknown. [b] Finding is robust against the file-drawer effect ($FSN > 5k + 10$).

be noted that there were only 10 samples available for this additional analysis. Taken together, these analyses revealed an effect for gender but no effect of the role of patient versus partner.

Other potential moderators. We also investigated whether the magnitude of the gender difference within couples was affected by a number of medical characteristics of patients or methodological characteristics of studies. The moderator analyses showed that regardless of the time since diagnosis, sample size, and response rate, the gender difference in distress remained significant and robust against the file-drawer effect (see Table 3). With respect to cancer stage, it must be noted that only a few studies of couples dealing with advanced cancer were available, but the gender difference in distress was found to be robust in studies focused on early stage cancer as well as studies with more mixed samples in terms of cancer stage. The gender difference was also significant, but less robust, in subgroups varying in design (i.e., cross-sectional observational studies and baseline assessments from intervention studies).

Question 2: To What Extent Is It Useful to Construe Distress in Patients and Partners in Terms of an Interdependent Emotional System?

On the basis of the values of the *SAMD* statistic, which ranged from −3.24 to 2.39, we excluded one outlying study. This study consisted

of only 22 couples and revealed a nonsignificant negative correlation between women with breast cancer and their spouses (Hannum et al., 1991). The first correlational analysis to assess the overall association between distress in patients and partners revealed a combined r of 0.29 (N = 2,468, 95% CI = 0.25 to 0.33, Z = 11.75, $p < .001$), with significant heterogeneity across studies, $\chi^2(34) = 59.13$, $p < .001$, $I^2 = 44.0\%$ (see Table 4). Gender of the patient did not moderate the association ($\chi^2_{diff} = 2.06$, $p = .36$). Moreover, including the outlying study did not change the basic results. Finally, the results remained the same when we included the mean correlation for multiple assessments in the longitudinal studies instead of the correlation at the baseline assessment; the results also were unchanged when we excluded the one study that reported a nonsignificant correlation without providing the specific value (Oberst & Scott, 1988). In line with Hypothesis 3, the correlation between distress in patients and partners is moderate, regardless of the gender of the patient.

Few studies examined the association between distress in patients and partners controlling for illness-related factors, such as Karnofsky performance status or social factors, including perceived family support and marital satisfaction. The results of these studies showed a moderate but significant contribution of distress in partners to distress in patients after controlling for such variables (Baider & De-Nour, 1999; Baider et al., 1996; Baider, Koch, et al., 1998; Northouse et al., 2001; Northouse, Dorris, & Charron-Moore, 1995).

Question 3: To What Extent Should We Attribute the Level of Distress Observed in These Couples to the Presence of Cancer in Their Lives?

Comparisons of Distress in Persons With Cancer in Studies of Couples Versus Studies of Patients

Overall, our comparison revealed similar levels of distress in persons with cancer in studies of couples versus studies of individuals and, if anything, distress in those participating in studies of couples appeared to be higher. For example, the mean transformed T scores on the BSI—which we calculated on the basis of the BSI manual—for women with breast cancer in the Northouse et al. (1987, 1995, 1998; *M*s ranged from 57.3 to 59.0) and Hannum et al. (1991; M = 49.3) studies of couples were similar to the mean scores for women with breast cancer (M = 53.4, N = 1,249) reported in an article by Zabora et al. (2001). Other samples of women with cancer included in our meta-analysis (Hagedoorn, Buunk, et al., 2000; Lewis et al., 1993; Tuinstra et al., 2004) had CES-D scores (*M*s ranging from 10.6 to 13.4) quite similar to the mean of 10.3 (SD = 9.4, N = 864) reported in a large study of individual women with early-stage breast cancer by Ganz, Rowland, Desmond, Meyerowitz, and Wyatt (1998). Also, the mean HADS (Depression subscale) for women with breast cancer in the Hinnen, Ranchor, et al. (2007) study of couples (M = 4.1, SD = 4.0, N = 92) was somewhat higher than the mean distress scores reported in large-scale breast cancer studies conducted by Groenvold et al. (1999; M = 2.8, SD = 3.2, N = 462; mixed grading) and Osborne et al. (2004; M = 3.3, SD = 3.2, N = 731; majority of patients in Stage I or II). Similarly, Sellick and Edwardson (2007) reported a comparable mean of 4.3 (SD = 3.9) for women (N = 1,563) with cancer in varying stages in a mixed-cancer study. These three large-scale studies assessed distress relatively shortly after diagnosis, as in the Hinnen, Ranchor, et al. (2007) study, and are comparable in terms of cancer stage.

With respect to men with cancer, Cliff and MacDonagh (2000) reported a mean score of 3.3 (SD = 3.3; N = 135) on the HADS Depression subscale for partnered men with prostate cancer in Stages I through IV, which is comparable to the means reported in a study of 861 men not selected for partner status with prostate cancer in Stages I through III (*M*s ranged from 2.7 to 3.8 depending on treatment procedure) conducted by Hervouet et al. (2005) and the means reported by Sellick and Edwardson (2007) for men in a mixed-cancer study (M = 4.3, SD = 3.9, N = 1,472, varying stages). Davison et al. (2003) reported a mean score of 11.5 (SD = 8.21, N = 74) on the CES-D for men with prostate cancer, the majority in Stage I or II, before treatment decisions were made. This mean is comparable to the pretreatment scores of 9.9 (SD = 7.8, N = 118) for men undergoing prostatectomy and 11.2 (SD = 7.9, N = 181) for men undergoing radiotherapy on the CES-D reported in a study by Korfage, Esskink-Bot, Janssens, Schroder, and de Koning (2006; Stages I through III).

In summary, there does not appear to be a consistently lower level of distress in women and men diagnosed with cancer in studies of couples versus studies of distress in persons diagnosed with cancer who were recruited without attention to their marital status. One possible explanation is that individuals with cancer

Table 4
Associations Between Distress in Persons Diagnosed With Cancer and Their Partners

Meta-analysis	k	Total N	Combined r	95% CI	Combined Z (p)	χ^2 (p)	I^2 (%)	FSN
All samples minus outlier	35	2,468	.29	0.25–0.33	11.75 ($p < .001$)	60.70 ($p < .001$)	44.0	848[a]
Moderator: Gender of the patient ($\chi^2_{difference} = 2.06$, $p = .36$)								
Couples with a female patient	20	1,428	.31	0.27–0.36	10.09 ($p < .001$)	32.79 ($p = .03$)	42.0	471[a]
Couples with a male patient	10	733	.25	0.18–0.31	6.21 ($p < .001$)	13.54 ($p = .14$)	33.5	82[a]
Couples with either a female or a male patient	5	307	.27	0.17–0.37	3.18 ($p < .001$)	12.31 ($p = .02$)	67.5	35

Note. k = number of studies; CI = confidence interval; χ^2 and I^2 indicate the heterogeneity across the studies; I^2 = the percentage of variability in effect estimates that is due to heterogeneity rather than sampling error, with $I^2 > 50$ representing considerable heterogeneity; FSN = fail-safe N.
[a] Finding is robust against the file-drawer effect ($FSN > 5k + 10$).

who do not have a partner may have alternative sources of support, whereas persons with cancer who have a partner may not always receive the support from their partner that they need (e.g., Carr et al., 2000; Coyne & DeLongis, 1986; Hagedoorn et al., 2006). Specifically, well intended behavior of the spouse is not always perceived as helpful (e.g., Dakof & Taylor, 1990; Hagedoorn, Kuijer, et al., 2000; Revenson & Majerovitz, 1990; Thompson & Pitts, 1992) and having a spouse may reduce the prospects for obtaining compensatory support elsewhere.

Findings of Distress in Studies of Couples Coping With Cancer That Include a Comparison Group

Only four studies that examined distress in couples coping with cancer included a comparison group (Hagedoorn, Buunk, et al., 2000; Hinnen, Ranchor, et al., 2007; Langer et al., 2003; Northouse et al., 1998). These studies revealed higher levels of distress among women in couples coping with cancer, regardless of whether they were the individuals with cancer, or the partners of such individuals. For example, in two samples, Hagedoorn, Buunk, et al. (2000) found an elevation in the CES-D of 4 to 5 points (i.e., 1/2 to 2/3 *SD*) relative to comparison women from the community. It was also found that women with breast cancer reported more distress than did comparison women from the community (Hinnen, Ranchor, et al., 2007) or comparison women with benign breast disease (Northouse et al., 1998). Hagedoorn, Buunk et al. and Langer et al. also found men with cancer to be more distressed than comparison men from the community. Only one study, the Langer et al. (2003) study of couples in which the person with cancer was facing impending stem transplantation, yielded a significant difference between male partners and their comparisons. Furthermore, the difference in distress between persons with cancer and their community comparisons (Hinnen, Ranchor, et al., 2007; Langer et al., 2003) and between their partners and community comparisons (Langer et al., 2003) decreased over time. Together, this limited number of studies indicates that distress is elevated in couples coping with cancer, at least for women, whether they are the individuals with cancer or the partners, but not to a great extent.

Findings of Distress in Studies of Couples Coping With Cancer Versus Normative Comparisons

A considerable number of studies of couples used the BSI. These studies were carried out in North America and Israel. Both American and Israeli norm scores are available but as we conducted this review, we developed reservations about these norms and, more generally, the integration of the Israeli studies with North American and European studies.

Some of these studies used gender-specific norms to score the BSI (Baider et al., 2004; Baider & De-Nour, 1999; Baider et al., 1996; Baider, Koch, et al., 1998; Ey et al., 1998). Therefore, it would be inappropriate to use these scores for comparisons across studies regarding gender differences in distress without converting them back to raw scores, so we used raw scores. However, we developed further reservations about the use of these norms for comparative purposes. The American norms, 0.35 ($SD = 0.37$) for women and 0.25 ($SD = 0.24$) for men, are based on a community-residing sample of 719 persons with a mean age of 46 ($SD = 14.7$) and of whom 60% were married (Derogatis, 1993; Derogatis & Melisaratos, 1983). A comparison between the levels of distress found in North American studies of couples coping with cancer (see Table 2 for the means and standard deviations) and the American norms revealed a small elevation (about a third of a standard deviation) in distress in both women and men (patients and partners) coping with cancer. In a sample of 565 American adults 60 years or older (Hale, Cochran, & Hedgepeth, 1984) scores (i.e, 0.43 and 0.38 for women and men, respectively) are very similar to those reported by American couples coping with cancer.

The Israeli norm scores (Gilbar & Ben-Zur, 2002b) were based on a nationwide probability sample of 510 people between the ages of 35 to 65 ($M = 45.6$, $SD = 8.6$). The Israeli norms are 0.74 ($SD = 0.56$) for women and 0.71 ($SD = 0.63$) for men, which is considerably higher than the American norms. There may, of course, be several explanations for the difference between the American and Israeli norm scores. First, the difference may be due to inherent difficulties in achieving comparability in the translation of the English version into Hebrew (van Widenfelt, Treffers, de Beurs, Siebelink, & Koudijs, 2005), an issue that has been raised by others (Netz, Zeav, Arnon, & Daniel, 2005). Other explanations may be cohort effects, cultural differences, or differences in the stressors with which populations are confronted, notably including war, threat of terrorism, and also the recent immigration of substantial numbers of people to Israel who are represented in the Israeli norm sample. It is noteworthy that studies applying other measures of distress also suggest that self-reported distress in Israeli samples is higher than in North American samples, with a mean score on the CES-D for Israeli young adults (Flett, Besser, & Hewitt, 2005) and older persons (Ben-Ezra & Shmotkin, 2006; Blumstein et al., 2004) above the usual clinical cutpoint of ≥ 16.

One Israeli study (Ben-Zur et al., 2001) presenting BSI raw scores did show more distress in women with breast cancer compared with the Israeli norms but not for their male partners relative to male norms. Another set of Israeli studies transformed BSI scores into T scores based on the American norms (e.g., Baider & De-Nour, 1999; Baider et al., 1996). We recalculated the BSI raw scores and compared these with both the American and the Israeli norm scores. In line with the American studies, Israeli couples coping with cancer reported more distress than the American norm group but less distress than the Israeli norm group.

In sum, these findings show that there appears to be a modest elevation in distress in couples coping with cancer when compared with these norms. Notably, however, the differences between American and Israeli norm scores tend to be larger than the differences in distress between the couples coping with cancer and their culture-specific norm groups.

Findings of Distress in Studies of Couples Coping With Cancer Versus Distress in Persons in the Community and General Medical Settings

With respect to the CES-D, several population studies have been carried out. The original mean score based on 2,514 persons from the general population presented by Radloff (1977) was 9.3. Another study of 3,379 people with a mean age of 41 ($SD = 15$) living in the northern part of the Netherlands (Bouma, Ranchor, Sanderman, & Van Sonderen, 1995) presented a mean of 10.1 ($SD = 8.7$, $N = 1,893$) and 8.5 ($SD = 7.8$, $N = 1,486$) for women

and men, respectively. Lewinsohn, Seeley, Roberts, and Allen (1997) presented a mean of 8.7 ($SD = 7.2$; $N = 586$) for women who were 50 years or older. Paterniti, Verdier-Taillefer, Geneste, Bisserbe, and Alperovitch (2000) examined a group of people from the community with a mean age of 65. The average scores were 13.2 ($SD = 8.5$) for 747 women and 9.2 (6.8) for 525 men. A comparison between these means and the means reported in the studies of couples applying the CES-D (Davison et al., 2003; Gritz, Wellisch, Siau, & Wang, 1990; Hagedoorn, Buunk, et al., 2000; Kuijer et al. 2004; Lewis et al., 1993; Tuinstra et al., 2004) revealed that women in couples coping with cancer have somewhat but not much higher distress scores (*M*s ranged from 10.6 to 19.9 for patients and 8.6 to 15.15 for partners). The Davison et al. and Kuijer et al. studies reported relatively high scores (15.5 and 19.9, respectively), which may be explained by the assessment period shortly before a treatment decision was made in the Davison et al. study and by the design of the Kuijer et al. study. This latter study examined an intervention for couples based on a convenience sample. In general, male patients (*M*s ranged from 7.0 to 11.9) and partners (*M*s ranged from 7.6 to 12.2) appeared to be similar to the scores for men in the comparison studies. In sum, the elevation in distress (determined with the CES-D) in women coping with cancer is roughly a quarter of the standard deviation of the comparison groups and even less in men.

With respect to the HADS, Spinhoven et al. (1997) provided data for 1,901 middle-aged (57–65 years) and 3,293 older (>65 years) persons from the general population, unfortunately not specified by gender. The means of 3.7 ($SD = 3.3$) and 4.6 ($SD = 3.6$) were not much different than the scores for both patients and partners in couples coping with cancer. The mean scores were 4.1 ($SD = 4.0$) for female patients with breast cancer and 3.9 ($SD = 3.6$) for their male partners in the Hinnen, Ranchor, et al. (2007) study, and 3.3 ($SD = 3.3$) for male patients with prostate cancer and 3.6 ($SD = 3.3$) for their female partners in the Cliff and MacDonagh (2000) study. Another study by Watts et al. (2002), consisting of 268 general practice patients of 65 years or older, also yielded a similar mean of 3.4 ($SD = 3.1$).

Conclusion

Taken together, our comparisons of distress in persons with cancer and their partners versus participants in large normative, community and primary care studies suggest that distress in couples coping with cancer is elevated, but only to a modest degree. One explanation for this modest (rather than high) elevation in distress in couples coping with cancer may be that the samples of these studies are selective owing to the inclusion of only patients who are partnered (and therefore possibly better off) and the requirement that the partner be involved. However, persons diagnosed with cancer in studies of couples did not appear to be less distressed than persons diagnosed with cancer in studies that focused on patients exclusively, indicating little support for this alternative explanation.

Discussion

Main Findings

First, our results highlight the overwhelming importance of gender versus the role of being the patient rather than the partner in predicting distress in couples coping with cancer. Differences in distress within couples could clearly be ascribed to gender; that is, women were found to report more distress than men, regardless of whether they were the individuals with cancer or the partners. There was no empirical support for the notion of persons with cancer being more distressed than the partners, or vice versa, once gender was taken into account. Moreover, a less extensive set of studies—but a group nonetheless with a substantial total number of participants—allowed us to examine from a different angle whether there was an interaction between gender and patient–partner status (i.e., whether patient–partner status mattered more for women than for men), and no interaction was found. The gender difference in distress was found to be unrelated to time since diagnosis, sample size, study design, and response rate. Furthermore, this finding was found to be relatively robust with respect to a file-drawer effect due to potentially unreported contradictory findings.

Second, we found only a moderate correlation between distress in persons with cancer and their partners' distress, and this correlation did not differ for couples with a female patient versus couples with a male patient. Such an association is consistent with a view of the couple reacting as an emotional system, but the size of this association allows for the possibility that it would be found to be spurious with full examination of potential confounds, including disease and treatment variables or contextual variables, such as social support and stressors not directly related to cancer.

Third, our findings suggest at most, a moderate elevation in distress in couples being associated with the presence of cancer. The strength of this conclusion was limited by the small number of studies providing direct comparisons between couples coping with cancer and controls. However, confidence in this finding is bolstered by comparisons between couples coping with cancer and samples of the general population and primary care patients in the same age range, which have often revealed similar levels of distress or only moderate elevations associated with cancer.

Gender Difference in Distress

How do we reconcile our results concerning gender and distress in couples facing cancer with the frequent and quite plausible claims in the literature that persons with cancer are more distressed than their partners (Ben-Zur et al., 2001; Giese-Davis et al., 2000; Northouse et al., 1998)? Moreover, how do we reconcile the current results with the more provocative and seemingly counterintuitive claim that partners are more distressed than persons with cancer, a claim for which a number of explanations have been offered (Keitel et al., 1990; Kornblith et al., 1994)? A major source of these claims has been the confounding of gender with the role of patient versus partner. In studies in which all of the persons with cancer are women, as in studies of breast cancer, it is likely that the persons with cancer will report more distress than their partners. When the persons with cancer are all men, as in studies of prostate cancer, then it is likely that the partner will report more distress. Findings for studies of couples that include both male and female persons diagnosed with cancer will depend on the gender balance of patients. A second source of claims seemingly contradicting our robust finding are a group of studies conducted mainly in Israel, in which comparisons of distress within couples have relied on distress scores controlling for gender differences before comparing

persons with cancer and their partners. A number of such Israeli studies were found to be a source of heterogeneity. Specifically, we conducted separate tests for heterogeneity in the larger set of studies of couples with and without outlier studies included, and heterogeneity was substantially reduced when some of these Israeli studies were dropped.

Within couples facing cancer, the gender difference in distress may simply reflect the gender difference generally found in the normal population (Gore & Mangione, 1983; Mirowsky & Ross, 1995; Nolen-Hoeksema, Larson, & Grayson, 1999; for reviews, see Davis et al., 1999; Mirowsky & Ross, 1986; Nolen-Hoeksema, 2001). Some researchers have found this gender difference to be larger in couples than among never and formerly married persons (e.g., Cleary & Mechanic, 1983; Gove & Tudor, 1973; for a review, see Coombs, 1991), whereas others did not find the gender difference in distress to depend on marital status (e.g., Stack & Eshleman, 1998; Williams, 2003). It is notable that the effect size for the gender difference in distress within couples coping with cancer approximates the effect size ($d = 0.25$, $CI = 0.21$ to 0.29) obtained for the gender difference in distress among the normal population in a meta-analysis conducted by Davis et al. (1999). This robust gender difference may simply be additive to any overall elevation in distress for both men and women in couples in which one person has cancer. Alternatively, different gender-linked psychological processes may determine the association between having been diagnosed with cancer and one's own level of distress versus having a partner with cancer and one's own level of distress. For instance, one source of differences in distress in partners of persons with cancer may be gender-linked differences in the role of support provider and another source of differences in distress in patients may be gender-linked consequences of the illness or the support they receive. Yet, the net effect of these different processes may be similar so that, taken together, these processes may robustly preserve the gender differential in distress in these couples that occurs in the absence of cancer.

Some research suggests that marital experiences, partners' characteristics such as supportiveness and mood, and partners' health condition are more strongly related to women's than to men's psychological well-being (e.g., Benyamini et al., 2000; Cutrona, 1996; Hagedoorn, Sanderman, Buunk, & Wobbes, 2002; Hagedoorn et al., 2001; McRae & Brody, 1989; Quirouette & Gold, 1992). The explanation has been provided that women's roles, particularly in couples and families, commits them to being nurturant and therefore more reactive to stressors in significant others (Wethington, McLeod, & Kessler, 1987). Women report more distress especially when they also report that they lack competence in their task of providing nurturance to an ill partner (Hagedoorn et al., 2002). Whereas this would suggest that women report more distress when their partners have cancer than men whose partners have cancer would report, such an effect must be comparable to gender differences in the distress associated with oneself having been diagnosed with cancer. With respect to patients, a less explored hypothesis suggests that gender differences in the dynamic associations of pain and fatigue with psychological distress (Hirsh, Waxenberg, Atchison, Gremillion, & Robinson, 2006; Riley, Robinson, Wade, Myers, & Price, 2001) may render women's level of distress more responsive to these aspects of the experience of cancer and its treatment. In this view, women would tend to experience a greater elevation in the distress associated with having cancer than men. In short, a number of diverse hypotheses are available to explain gender differences in distress among persons facing cancer as patients as well as their partners. A lack of strong independent effects for being a patient versus a partner does not preclude different gender-based explanations of the levels of distress associated with these roles.

Association Between Distress in Patients and Partners

We found a moderate correlation of .29 between distress in patients and partners, with the correlation nonsignificantly higher when the patient was female. We were unable to explore adequately whether disease variables might explain this correlation because of limitations in the available literature. Such a correlation is consistent with the view that the couple reacts as an emotional system, as in the sense of emotional contagion or direct transmission or interdependence of emotional response to cancer, but by itself cannot establish a mechanism or even rule out spuriousness (Segrin, 2004, 2006). Overall, further exploration of the notion of couples facing cancer reacting as an emotional system will require clearer specification of just what is meant by this claim.

However, it would be useful to place this correlation in the context of associations that have been found for the mood of other dyads in regular contact. Segrin (2004) noted "This phenomenon has been documented in roommates (Joiner, 1994; Sanislow, Perkins, & Balogh, 1989; Siegel & Alloy, 1990), married couples (e.g., Benazon & Coyne, 2000; Coyne et al., 1987; Fitzpatrick, Fey, Segrin, & Schiff, 1993), and dating couples (Katz, Beach, & Joiner, 1999)" (p. 837). Butterworth and Rodgers (2006) examined concordance in the Mental Health scale of the 36-item Short Form Health Survey Questionnaire (SF-36) for 3,808 mixed sex Australian couples sharing households and found a correlation of .25 that remained significant after the introduction of a large number of demographic, social, and contextual covariates. These results are consistent with those of Bookwala and Schulz (1996), obtained with 1,040 spousal pairs age 65 years or older from the Cardiovascular Health Study, even after a host of variables known to predict well-being were introduced as controls. However, Bookwala and Schulz (1996) noted that they obtained similar results for physical health as well as depressive symptoms, so multiple mechanisms such as shared environment and patterns of behavior, and not just emotional contagion, needed to be considered.

Segrin (2004) examined the similarities within separate samples of dating couples and college roommates who were not romantically involved and found significant cross-sectional intra-dyadic associations in affect at each of three assessments over time. However, structural equation modeling examining patterns of change over time, which controlled for prior negative affect and initial similarity, provided only modest weak and inconsistent support for direct transmission of affect in these sets of dyads. Such results suggest caution in interpreting simple cross-sectional, bivariate correlations between individuals' distress in couples as evidence of a process of emotional contagion.

Segrin et al. (2005) examined longitudinal patterning of distress in dyads of women with breast cancer and persons with whom they were close, a group that included children and friends as well as intimate partners. Not only were significant correlations in emotional distress obtained over time, there were similar trajectories in distress within dyads: "As the emotional well-being of women

with breast cancer improved or deteriorated, their partners' well-being also changed" (Segrin et al., 2005, p. 682). These results go beyond cross-sectional data, but the possibility remains that these similarities in emotional trajectories were due to their being tied to the trajectories in the course of the women's active treatment, to which they and their partners were reacting.

In summary, the modest, but significant correlation between distress in patients and partners obtained in the present meta-analysis is consistent with emotional interdependence and even direct emotional contagion. This correlation encourages further consideration of this association and its determinants. However, considerable ambiguity remains that needs to be clarified, which could be resolved with longitudinal studies using more sophisticated statistical techniques and introducing appropriate controls for "third variables" that might explain away apparent direct emotional contagion in terms of the couple reacting to common stressors, including the course of cancer treatment.

Increase of Distress Due to Cancer

Investigation of the key question of whether cancer is associated with an increase in the level of distress for both patients and partners proved somewhat frustrating in that we found only a few studies that included a comparison group. We also had to contend with some heterogeneity associated with the countries in which studies were conducted. However, we were able to clarify some of these international differences by finding more general evidence that studies of distress conducted in Israel with standard instruments translated into Hebrew may produce higher mean distress scores, and not just with persons with cancer. Moreover, we were able to locate quite large studies of individual persons with cancer and similarly large studies of general population and primary care samples in North America and Europe that allowed direct comparisons with persons with cancer and their partners because they used the same instruments. Some of these studies separately had larger sample sizes than the entire combined sample size from studies of couples for our meta-analyses. In turning to this additional literature, we were not seeking to resolve prematurely the question of whether couples facing cancer have elevations in distress. Rather, we were attempting to obtain a provisional answer to the question that could be used to guide the design and interpretation of research, pending any growth in the availability of studies that provide direct comparisons of couples facing cancer with other couples.

Overall, our assessment is that there appears to be a modest elevation in distress in couples facing cancer, but mean scores are well below clinical cutpoints. Comparison of large-scale studies of individual persons with cancer, and studies of members of the general population and primary care settings, suggest considerable overlap in the levels of distress in these various populations. For future research, we suggest considering factors other than cancer, in attempts to explain the distress found among persons with cancer and their partners, and to explore psychosocial processes common to older couples regardless of whether they are facing cancer. We find little reason to suggest diagnosis and treatment of cancer to be uniquely catastrophic or traumatic circumstances, particularly in light of the apparent comparability of levels of distress among persons with cancer and persons drawn from primary medical care settings.

Limitations of the Synthesis of Results Concerning Distress in Couples Coping With Cancer

Some consistent limitations in the literature we reviewed place corresponding limitations on the generalizability of our meta-analysis. These are limitations in reporting, selection of sites of cancer for study, representativeness of the samples, and heterogeneity. Furthermore, there are some pitfalls associated with studying couples (versus individuals) coping with cancer.

Limitations in Reporting

From the outset, we encountered several problems that complicated identifying and evaluating potentially relevant studies and comparing their findings. Difficulties sometimes started with the abstracts, where it was often unclear whether distress in both partners or distress in either patients or partners was being investigated. Many abstracts failed to indicate the cancer site or procedure, the gender of the patients, the measure of distress, or the objective or hypothesis being tested. Even within the bodies of articles, a considerable number of studies did not provide basic details concerning response rate, patient and partner characteristics, or disease characteristics such as cancer stage, prognosis, and presence of metastases, which complicated comparison across studies. Importantly, it was sometimes difficult to determine whether multiple papers from the same research group came from different independent samples or not. This was problematic because several papers failed to explicitly state that data had been published elsewhere, whereas we noted that participants with the same cancer diagnosis were recruited in the same hospital in the same time period. In such cases, we retained only one of the related studies.

Limitations on the Range of Cancers Studied

Studies of gender differences in distress in couples coping with cancer disproportionately depend on integrations and comparisons of studies of breast and prostate cancer. Thus, gender becomes confounded with characteristics of these cancers so that it becomes difficult to distinguish between gender and differences in the impact of these particular cancers and their treatment on individuals and couples. It would seem appealing to have greater representation of gender-mixed samples of colon cancer where more direct comparisons would be possible. However, there are likely differences between colon and breast and prostate cancer in the individual psychological and interpersonal processes that they elicit. So, whereas more studies of couples faced with colon cancer would be desirable, we should be cognizant of the limitations of any generic statements about gender and the effects of cancer. For many purposes, it is useful to be able to say that gender is more important than role status, but it is also important to recognize potential limits on the generalizability of that statement.

Early-stage cancers are also more represented in the studies we reviewed than advanced disease, and here too we need to recognize the potential pitfalls in applying generalizations from the literature included in the meta-analysis to persons with advanced disease. Even in the instances in which we were able to consider stage of cancer as a moderator variable, there was a predominance of early-stage cancers, and thus the consideration of stage as a mod-

erator may have been underpowered. There was little representation of cancer sites with poor prognoses such as lung and pancreatic cancer. The lack of attention to lung cancer is particularly noteworthy and unfortunate, given the prevalence of lung cancer. Some samples included a broader range of cancers, but it remained impossible to make statements about the contribution of particular cancer sites to the effects obtained. Moreover, such mixed studies were more likely to be excluded from the meta-analyses because of the heterogeneity they contributed. Yet, this heterogeneity might not be entirely due to the range of cancers being considered; mixed studies are likely to involve combining small convenience samples of persons with particular cancers who are less representative of persons who are affected by these cancers.

Before we undertook our meta-analyses, we were concerned that clinical heterogeneity in terms of site and stage of cancer would dog us as a source of statistical heterogeneity (see Fletcher, 2007, for a succinct discussion of statistical versus clinical heterogeneity). Yet, statistical heterogeneity did not pose the threat to the interpretation of our analyses we anticipated. When we formally identified studies that were sources of heterogeneity or that could be classified as outliers, site and stage of cancer were generally not the distinguishing features of these studies. Moreover, excluding these studies did not affect results. We should note that large-scale studies examining distress in persons diagnosed with cancer have shown (a) weak associations between objective medical characteristics, including stage and treatment, and distress within persons with cancer (Bardwell et al., 2006; Stommel, Kurtz, Kurtz, Given, & Given, 2004; Zabora et al., 1997) and (b) weak associations between distress and cancer site, with the exception of lung and pancreatic cancer, which have sometimes been found to be associated with higher levels of distress than other cancer sites (Carlson et al., 2004; Zabora et al., 2001). For example, Stommel et al. (2004) stated that "cancer stage at initial diagnosis did not appear to affect depressive symptomatology or any of its subdimensions, but lung cancer patients had higher depression scores than breast cancer patients as well as colon and prostate cancer patients" (p. 568). Nonetheless, it is a limitation of the studies we reviewed that they did not allow a fuller examination of uses of site and stage as moderator variables.

In summary, studies of distress in couples with cancer are limited in the severity of disease and the particular cancer sites that predominate. Studies of more advanced disease and cancers with poorer prognosis are highly desirable, but there might be limitations in the appropriateness of the results if such studies would be integrated with existing studies for the purposes of broad generalizations about couples and cancer.

Representativeness of Samples

Biased and otherwise nonrepresentative samples due to convenience sampling or low response rates, especially when there are different response rates for patients and partners, make it difficult to draw conclusions about differences between patients' and partners' levels of distress. In many studies, couples were asked to participate and if they declined, it was usually unclear whether the patient, the spouse, or both partners did not want to participate (e.g., Ey et al., 1998; Hagedoorn, Buunk, et al., 2000; Ptacek et al., 1994). In other studies, partners were only asked to participate when patients had already given their consent (e.g., Ell, Nishimoto, Mantell, & Harnovitch, 1988; Giese-Davis et al., 2000). In these cases, patient and partner response rates cannot be compared, because patients may decline because they think that their partner will not be interested. Indeed, Manne (1994) reported that "discussions with patients have suggested that, if husbands appear to be tentative about participation, the female patient is reluctant to participate" (p. 322).

In articles based on longitudinal studies, often data were only presented for those couples who completed all assessments, which may have resulted in a biased sample. Authors of one study (Bultz et al., 2000) noted that a bias may have come about because data were obtained from baseline assessments for a pilot study of an intervention, aiming to decrease distress in partners of women with breast cancer. Levels of distress were indeed higher than what has been found in other studies of persons with cancer and their family members. In general, however, there is a lack of attention to the potential selectivity of samples drawn from intervention studies. In studies reporting cross-sectional data, it is not always clear when baseline data of intervention studies have been used. Similarly, it is not always apparent to what extent persons with cancer and their partners had to accept response burden in order to be included in a sample for which only cross-sectional self-report data are being reported. Intuitively, it would seem that studies with greater response burden would draw a more select sample than studies simply involving self-report questionnaires. Incomplete reporting of the circumstances under which couples were recruited and failure to provide citations for other articles drawing on the same samples make it difficult to evaluate the effects of potential biases in sample recruitment and retention on the data available for review.

Pitfalls Associated With Studying Couples Coping With Cancer

Items contributing to particular measures of distress may perform differently depending on whether respondents are experiencing substantial symptom distress associated with illness, such as fatigue, pain, or side effects of treatment. For example, some measures of distress, such as the Brief Symptom Inventory (Derogatis & Melisaratos, 1983), include items that may reflect disease or treatment symptoms (e.g., fatigue, nausea, and loss of appetite) rather than depression or anxiety. In one study, for instance, it was shown that women with recurrent breast cancer, most of them receiving some kind of adjuvant treatment, reported higher scores on the BSI than their husbands, but only when the subscale Somatization was included (Northouse, Laten, & Reddy, 1995). Some measures, such as the HADS and the MHI, represent efforts to avoid the contribution of illness-related symptom distress and side effects, but it is not clear that they are more effective in doing so. It may simply be the case that fatigue and pain increase distress, even as measured by specific items that do not inquire directly about fatigue and pain.

Another potential pitfall concerns the comparison between couples with a male patient versus couples with a female patient. First, men and women may differ in the age of onset of cancer. For example, patients with prostate cancer are generally older than women with breast cancer. Second, men and women typically have partners of different ages. In many Western societies, men, on average, tend to marry a woman who is 3 years younger, whereas women tend to marry a husband who is 3 years older. Stated

differently, there will be an age difference of approximately 6 years between male and female partners if male and female patients are the same age. This has important, but generally ignored implications for the health issues and functional capacity of partners.

Third, at least in a literature limited to heterosexual partners, being female and the patient is confounded with having a husband. Any statement about being a woman versus a man can also be expressed in terms of having a male partner versus having a female partner. Thus, our key conclusion about gender differences in heterosexual couples could be provocatively expressed as the following: "in a couple facing cancer, regardless of whether it is you or your partner who has the cancer, you are worse off if your partner is male than if your partner is female." There is an appeal to studying same-sex couples, and there are abundant good reasons for according same-sex couples more attention than they have received (McGregor et al., 2001). We cannot assume, however, that having a lesbian partner is equivalent to a heterosexual patient having a wife rather than a husband.

Fourth, the (secondary) stressors with which couples are confronted may be quite different depending on the role of the patient within the marriage. If the patient is the financial supporter, the illness may be associated with forced retirement and financial strains, but if the patient is the primary housekeeper, problems in the area of housekeeping and social relationships are more likely. Research indicates that, despite some considerable change, men more often still fulfill the role of primary financial supporter, whereas women more often fulfill the role of primary housekeeper (e.g., Coltrane, 2000; Evandrou, Glaser, & Henz, 2002; Evertsson & Nermo, 2004).

Directions for Future Research

Reframing Basic Questions

We have noted considerable limitations and shortcomings in the existing research concerning couples coping with cancer and how we need to look to future studies to fill these gaps and correct these inadequacies. We hope that our substantive findings will serve to guide the field beyond the basic questions that have dominated the literature thus far and assist in the phrasing of new questions. Our findings most obviously reinstate the importance of gender. We are skeptical of phrasing research questions and interpreting findings in terms of patient and partner without reference to gender. Even when studies are homogeneous with respect to the gender of the person with cancer, as in breast or prostate cancer studies, researchers should anticipate the pitfalls of subsequent integrations of findings with those of other studies in which the match between patient status and gender is reversed.

More generally, "The accumulation of scientific knowledge often progresses from documenting an effect to evaluation of potential mediators and moderators of that effect" (Segrin, 2006, p. 838). Until now, the limited attention to mediators and moderators of the effects of cancer on distress in couples has largely focused on disease and treatment characteristics. We have noted that unfortunately few studies give consideration to these variables. It is problematic that the range in these variables has often been restricted by the recruitment of early-stage patients and the limited representation of later stage patients. On the basis of recent large-scale studies of the determinants of distress among individuals with cancer, we may expect objective features of disease and treatment to account for only small amounts of variance (Bardwell et al., 2006; Stommel et al., 2004; Zabora et al., 2001). Scheier and Helgeson (2006) stated, "The disease may in fact be having some impact on depressive symptoms, but only indirectly as reflected through the patient's reactions to it. Still, it seems to be a very good day to be a psychologist" (p. 2408).

Identifying Relevant Theoretical Frameworks

Much of the literature concerning distress in couples confronted with cancer is only minimally theoretical or simply atheoretical, beyond the hypothesis that cancer is distressing for partners as well as the person diagnosed with cancer. Recently, some more theoretically explicit empirical work has appeared, highlighting how interpersonal processes may mediate the impact of cancer on patients and their partners. For example, responding in a critical, avoidant, and unsupportive manner appears to have long-term detrimental effects on distress in patients through avoidant coping (Manne, Ostroff, Winkel, Grana, & Fox, 2005). Additionally, there have been notable explorations of how people can exacerbate the distress of others, both men and women, by discouraging the self-disclosure needed to cognitively process a stressful experience such as cancer (Lepore, Ragan, & Jones, 2000).

Recent attention has been directed as well to the importance of mutuality in constructive communication, avoidance, and demand–withdraw communication (Manne et al., 2006). Manne et al. have shown that women with breast cancer and their male partners only moderately agreed about the way they communicated with one another concerning cancer-related issues. Women's own perception of the communication within the relationship was found to be associated over time with their own distress and marital satisfaction, whereas distress and relationship satisfaction in men was associated with their own as well as their wives' perception of communication. This work represents an important advance beyond the bulk of the studies we have reviewed. However, this work tends to be conducted with samples in which gender and role are confounded (i.e., breast and prostate cancer), and it largely focuses on cancer specific processes. These studies tend to assume that cancer is the major factor organizing the emotional lives of these couples, and there is a particular attention to the deleterious effects of cancer on the functioning of these couples and the potentially deleterious effects of partners on persons with distress. Thus, hypothesis testing tends to be guided by key assumptions that are themselves in need of empirical test.

Whereas we encourage this line of research, we believe that it needs to be supplemented by introducing different theoretical models that include attention to the likely primacy of gender. Furthermore, given the potentially modest amount of distress in these couples attributable to cancer, theoretical formulations and the research questions that are derived from them need to allow for the possibility of substantial influences of stress and support processes that are not tied to cancer per se. In other words, how couples deal with cancer and how they deal with other issues in their lives might be quite similar.

We note the relevance of broader theories of gender differences in coping in relationships. Particularly noteworthy is the work of Taylor and her colleagues (S. E. Taylor, 2006; S. E. Taylor et al.,

2000) suggesting a psychobiological basis for a greater tendency of women to show nurturant and affiliative responses under stress and a greater responsiveness of women to stressful events affecting others, such as a partner's diagnosis of cancer. Similarly accommodating the primacy of gender, there needs to be attention to whether the demand–withdrawal pattern studied in women with breast cancer and their partners (Manne et al., 2006) is paralleled in the demands and emotional pursuit by partners of men with prostate cancer, rather than vice versa.

General models of marital functioning must be applied to identify the full range of individual and relational variables that need to be considered as direct influences and mediators and moderators. Interesting new directions for research of couples in the context of cancer could come from Story and Bradbury's (2004) excellent discussion about our current understanding of marriage and stress. For example, these authors underscore the importance of research that examines the interplay among stressor characteristics (e.g., disease characteristics), individual (e.g., proneness to depression) as well as dyadic (e.g., proneness to hostile interactions) vulnerabilities, and individual as well as dyadic coping behavior in explaining couples' adjustment over time (see also, DeLongis & Holtzman, 2005). Related work on collaborative coping of couples with everyday problems may also provide interesting directions for studies in the context of cancer (Berg, Meegan, & Deviney, 1998).

Our results concerning the concordance of distress in patients and partners point to a phenomenon worthy of explanation, but we acknowledge the limited interpretability of simple cross-sectional correlations in terms of emotional contagion without considering alternative explanations. More compelling answers to the question of how concordance between levels of distress in partners within couples comes about require controlling for the extent to which the apparent association merely reflects reaction to a shared environment and not just as defined by cancer-related variables. Also, theory needs to be imported from other literatures concerning emotional processes in close relationships. For instance, Tower and Kasl (1996) have presented analyses indicating how closeness in an intimate relationship decreases one's vulnerability to distress, which is consistent with the much larger social support literature. However, closeness was also found to increase one's vulnerability to partners' distress. Exploration of such reciprocal emotional processes requires more complex longitudinal designs and appropriate multivariate statistics.

Relationship satisfaction or closeness will undoubtedly figure heavily in theoretical accounts and empirical findings concerning both levels of distress in couples and the association between distress in patients and partners. However, we should be cautious about assuming that cancer is associated with marital distress. Indeed, the high level of marital satisfaction among couples in studies of cancer (e.g., Hagedoorn, Kuijer, et al., 2000; Manne, Alfieri, Taylor, & Dougherty, 1999) is such that it becomes misleading to consider couples below the mean in marital satisfaction in these samples as "maritally distressed" because a considerable proportion will fall well within the maritally satisfied range. Paralleling our admonitions about not prematurely assuming that cancer is devastating in terms of individual distress, Schover (2004) has cautioned against assuming that cancer generates relationship distress among patients or partners. She cited findings (Dorval, Maunsell, Taylor-Brown, & Kilpatrick, 1999; Taylor-Brown, Kilpatrick, Maunsell, & Dorval, 2000) that women with cancer are no more likely than comparison controls to suffer marital dissolution. Indeed, in one study (Dorval et al., 2005), a substantial proportion (42%) of women with breast cancer reported that their cancer experience brought them closer to their partner, and only a small proportion (6%) reported that they were more distant as a result.

We were unable to resolve decisively the important question of to what extent the distress in couples coping with cancer can be attributed to the diagnosis, disease, or treatment of cancer itself. Yet, we were able to raise doubts whether the distress in couples coping with cancer was uniquely attributable to cancer. Findings comparing persons with cancer and their partners to large community-dwelling samples suggest a smaller magnitude of effect, and similarities with levels in primary care argue against the uniqueness of the cancer experience. Even if direct comparisons between couples with cancer and suitable comparison control couples should be considered an important priority, we do not need to wait hopefully for the accumulation of such studies in order to begin capitalizing on some benefits of recognizing that cancer may be less catastrophic or traumatic or defining of life's issues for many couples than has been assumed. Namely, this tentative assessment of the level of distress associated with cancer suggests the need to direct attention to continuities in stress, coping, and support processes in these couples that preceded the cancer and that may continue even in the presence of cancer. To what extent is there continuity, in terms of the effects of everyday stresses and sources of support, rather than the mobilization of qualitatively different processes? To what extent can temporal parameters qualify the answers to this question, such as evaluating couples 6 months after diagnosis or at the end of acute treatment?

Given that cancer may not have the substantial impact on levels of distress level that has been assumed, it becomes more important to examine how the disease affects instrumental role functioning. Effects on distress may be secondary to the ability of couples to maintain or reorganize such functioning. Furthermore, given the importance of gender, we should examine how gender affects role functioning in ways other than through emotional distress. Recently, there has been evidence that living with a partner significantly affects the ability of men with cancer to obtain the benefits of more intensive treatment and that availability of a partner positively affects their survival, whereas the effects of women having a partner are weaker or nonsignficant (Konski, DeSilvio, et al., 2006; Konski, Pajak, et al., 2006). We should emphasize that none of these suggestions should be seen as prematurely settling the issue of how much distress in couples can be attributed to the presence of cancer. Rather, these suggestions are intended to open research questions that are becoming salient in the absence of demonstration that cancer has a profound effect on the distress of most couples who are faced with the disease.

Alternative Methodologies and Statistical Issues

The study of distress in couples confronting cancer obviously needs to move further beyond such a strong reliance on cross-sectional questionnaire data, as we saw in the studies we reviewed. Qualitative research can provide an important means of identifying previously neglected variables for consideration in quantitative studies. We believe there is especially a need for longitudinal studies and also greater use of observational, daily diary, and

experience sampling studies. One fundamental key question that emerges from our meta-analyses is just how much cancer intrudes upon and organizes the lives of couples confronted with the disease. Direct sampling of their interactions and daily experiences that does not presuppose an answer to that question could prove illuminating in this regard.

Numerous examples of daily diary studies of couples are available (Almeida & Kessler, 1998; DeLongis, Capreol, Holtzman, O'Brien, & Campbell, 2004; Shrout, Herman, & Bolger, 2006). Bolger and colleagues (Bolger, Davis, & Rafaeli, 2003; Laurenceau & Bolger, 2005) have provided excellent guides for the use of diary methods to study couples. They also described the additive value and distinctive answers these methods can provide compared with other methods. Tennen, Affleck, Coyne, Larsen, and DeLongis (2006) have reviewed some of the considerations in choosing among alternative technologies for obtaining daily diary and ecological momentary assessment data. Use of such methods could bring a fresh new perspective on distress in couples confronting cancer.

However, it should be clear that there is no single best method for advancing our understanding of couples confronting cancer. Important insights can be obtained by the coordinated use of multiple methods in the same study. As an example, Manne et al. (2004) examined communication patterns during videotaped laboratory discussions of couples in which the woman had been diagnosed with breast cancer. They found that the women reported less distress when partners responded to their disclosures with reciprocal disclosures or humor and when partners proposed fewer solutions. Moreover, Manne et al. found links between communication patterns and distress, especially in cancer-related rather than general-issue discussions. However, diary and momentary assessment studies could be used to contextualize and qualify the interpretation of these findings. Namely, such in vivo assessments can determine whether these results are simply due to cancer-related discussions being a strong determinant of the women's distress or whether these results are an artifact of the infrequency with which these discussions occur in everyday life and therefore due to the momentousness of their being artificially induced in the laboratory.

Some Design and Statistical Considerations

A recurring theme in our discussion of future research is the need to examine a wider range of potential confounds as statistical controls and to identify and test alternative direct influences and mediators and moderators of distress in couples confronted with cancer. Many of the studies we examined had sample sizes that were too small even to begin the exploration of such issues. Introduction of control variables or testing the simplest of mediational or moderator variables would involve overfitted regression equations or a pre-selection of variables based on preliminary analyses that capitalized on chance, with the net result that findings would not be generalizable (Babyak, 2004). The suggestions for further research may require multivariate analyses that entail sample sizes larger than were seen in many of the studies we included in the meta-analyses.

Researchers routinely declare that coping with cancer is a dyadic affair. However, few studies have framed their research questions and analyzed their data on a couple level. For instance, some studies have linked coping strategies and social support with indicators of couple adjustment. These studies usually present separate hypotheses and analyses for patients and partners (e.g., Banthia et al., 2003; Ben-Zur et al., 2001; Northouse, Dorris, & Charron-Moore, 1995). Kenny and his associates (e.g., Cook & Kenny, 2005; Kashy & Kenny, 2000; Kenny & Cook, 1999; Kenny, Kashy, & Cook, 2006) have proposed a model of dyadic data analysis, the actor–partner interdependence model (APIM), which uses the dyad as the unit of analysis while also allowing for gender interactions. The model assumes that an individual's characteristics (e.g., communication style) affect his or her own score (i.e., actor effect) on an outcome variable (e.g., distress) as well as his or her partner's outcome score (i.e., partner effect). The partner effect from the APIM directly models the mutual influence that may occur between partners within a couple. A detailed description of how to use multilevel modeling programs to analyze dyadic data with the APIM is now available (Campbell & Kashy, 2002; Kenny at al., 2006).

We are beginning to see studies that use this APIM approach to examine distress in couples coping with chronic disease. For example, Badr (2004) showed that the more similar partners were in their use of active engagement (i.e., actively involving one's partner in decision-making and problem-solving activities), the higher the couples' dyadic adjustment score. The APIM and associated analysis techniques make it possible to address research questions with respect to dyadic coping that could not be answered before. The technique is also interesting for answering the question of whether partners influence each others' distress or whether the cancer experience or other couple or individual characteristics account for the link between partners' distress.

Studies That Would Now Be Less of a Contribution to the Literature

Having detailed future studies that are noted as desirable according to the results of our meta-analysis, it might be helpful to close by indicating what kind of studies would represent less of a contribution to the literature and might even introduce confusion in any effort to achieve a meaningful integration of available data. First, modest-sized studies of couples facing breast or prostate cancer are unlikely to challenge the results we have obtained, particularly if the sample size or available data did not allow adequate exploration of mediators or moderators. Second, modest-sized studies of samples mixed with respect to cancer site, particularly those that do not provide adequate examination of the effects for particular cancers, can even prove misleading. Thus, additon of a small number of persons with lung cancer to larger groups of breast and prostate cancer can produce misleading results. Results may not generalize to any of the three groups, and low power for exploring differences related to site or for exploring the effects of potential confounders can lead to a false confidence in an apparent lack of differences.

Conclusion

The three main findings of our meta-analyses and critical review are summarized as follows: (a) Gender and not patient–partner role was associated with differences in distress within couples coping with cancer, (b) distress in individuals within couples showed a

moderate correlation, and (c) compared with control groups and members of the community and primary care, patients and their partners showed moderate elevations in distress at most. In addition to limitations in the existent literature, several suggestions for future research were made. We hope that these suggestions come to serve as encouragement to further the field in addressing important issues in (a) coping with cancer within couples and (b) adapting to life-threatening and life-altering illness in general.

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